



6560-50-P

## **ENVIRONMENTAL PROTECTION AGENCY**

### **40 CFR Part 63**

**[EPA-HQ-OAR-2002-0083; FRL-9998-20-OAR]**

**RIN 2060-AT03**

### **National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities Residual Risk and Technology Review**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing amendments to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities. This proposal presents the results of the residual risk and technology review (RTR) conducted as required under the Clean Air Act (CAA). Based on the results of the EPA risk review, the Agency is proposing that risks due to emissions of air toxics are acceptable from this source category and that the current NESHAP provides an ample margin of safety to protect public health. Under the technology review, we are proposing there are no developments in practices, processes or control technologies that necessitate revision of the standards. Pursuant to granting a request to reconsider setting mercury standards in 2005, we are proposing an emissions standard for mercury based on limiting the amount of mercury in the metal scrap used by these facilities. We also are proposing: the removal of exemptions for periods of startup, shutdown, and malfunction (SSM) consistent with a 2008 court decision, and clarifying that the emissions standards apply at all times; the addition of electronic reporting of performance test results and compliance reports; and minor corrections and clarifications for a

few other rule provisions. Finally, we are soliciting comment on unmeasured fugitive and intermittent emissions that have been identified as occurring at facilities in this source category and the cost and effectiveness of potential work practices that could be implemented to reduce emissions from these fugitive and intermittent sources.

**DATES:** *Comments.* Comments must be received on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

*Public hearing.* If anyone contacts us requesting a public hearing on or before **[INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we will hold a hearing. Additional information about the hearing, if requested, will be published in a subsequent **Federal Register** document and posted at <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards>. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

**ADDRESSES:** You may send comments, identified by Docket ID No. EPA-HQ-OAR-2002-0083, by any of the following methods:

- Federal eRulemaking Portal: <https://www.regulations.gov/> (our preferred method).  
Follow the online instructions for submitting comments.
- Email: [a-and-r-docket@epa.gov](mailto:a-and-r-docket@epa.gov). Include Docket ID No. EPA-HQ-OAR-2002-0083 in the subject line of the message.

- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2002-0083.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2002-0083, Mail Code 28221T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.
- Hand/Courier Delivery: EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m. – 4:30 p.m., Monday – Friday (except federal holidays).

*Instructions:* All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

**FOR FURTHER INFORMATION CONTACT:** For questions about this proposal, contact Dr. Donna Lee Jones, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5251; fax number: (919) 541-4991; and email address: [jones.donnalee@epa.gov](mailto:jones.donnalee@epa.gov). For specific information regarding the risk assessment methodology, contact Ted Palma, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5470; fax number: (919) 541-0840; and email address: [palma.ted@epa.gov](mailto:palma.ted@epa.gov). For information about monitoring and testing requirements, contact Kevin McGinn, Sector Policies and Programs Division (D230-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research

Triangle Park, North Carolina 27711; telephone number: (919) 541-3796; fax number: (919) 541-4991; and email address: *mcginn.kevin@epa.gov*. For information about the applicability of the NESHAP to a particular entity, contact Maria Malave, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building (Mail Code 2227A), 1200 Pennsylvania Avenue, NW, Washington DC 20460; telephone number: (202) 564-7027; and email address: *malave.maria@epa.gov*.

#### **SUPPLEMENTARY INFORMATION:**

*Public hearing.* Please contact Ms. Adrian Gates at (919) 541-4860 or by email at *gates.adrian@epa.gov* to request a public hearing, to register to speak at the public hearing, or to inquire as to whether a public hearing will be held.

*Docket.* The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2002-0083. All documents in the docket are listed in Regulations.gov. Although listed, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in Regulations.gov or in hard copy at the EPA Docket Center, Room 3334, WJC West Building, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

*Instructions.* Direct your comments to Docket ID No. EPA-HQ-OAR-2002-0083. The EPA's policy is that all comments received will be included in the public docket without change

and may be made available online at <https://www.regulations.gov/>, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <https://www.regulations.gov/> or email. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, *etc.*) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

The <https://www.regulations.gov/> website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through <https://www.regulations.gov/>, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be

free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at <https://www.epa.gov/dockets>.

*Submitting CBI.* Do not submit information containing CBI to the EPA through <https://www.regulations.gov/> or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2002-0083.

*Preamble acronyms and abbreviations.* We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ACI	activated carbon injection
AEGL	acute exposure guideline level
AERMOD	air dispersion model used by the HEM-3 model
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute

ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
BF	blast furnace
BOPF	basic oxygen processing furnace
CAA	Clean Air Act
CalEPA	California EPA
CBI	Confidential Business Information
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
EAF	electric arc furnace
EPA	Environmental Protection Agency
ERPG	Emergency Response Planning Guideline
ERT	Electronic Reporting Tool
ESP	electrostatic precipitators
GACT	generally available control technology
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
HEM-3	Human Exposure Model, Version 1.5.5
HF	hydrogen fluoride
HI	hazard index
HMTDS	hot metal transfer, desulfurization, and skimming
HQ	hazard quotient
IBR	incorporation by reference
ICR	information collection request
IRIS	Integrated Risk Information System
km	kilometers
lbs/yr	pounds per year
MACT	maximum achievable control technology
mg/m <sup>3</sup>	milligrams per cubic meter
MIR	maximum individual risk
MOU	memorandum of understanding
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NATA	National Air Toxics Assessment
NEI	National Emissions Inventory
NESHAP	national emission standards for hazardous air pollutants
NRDC	Natural Resources Defense Council

NTTAA	National Technology Transfer and Advancement Act
NVMSRP	National Vehicle Mercury Switch Recovery Program
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PAH	polycyclic aromatic hydrocarbons
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
PDF	portable document format
PM	particulate matter
POM	polycyclic organic matter
ppm	parts per million
PRA	Paperwork Reduction Act
REL	reference exposure level
RFA	Regulatory Flexibility Act
RfC	reference concentration
RfD	reference dose
RTR	residual risk and technology review
SAB	Science Advisory Board
SIP	state implementation plan
SSM	startup, shutdown, and malfunction
SV	screening value
THC	total hydrocarbon
TOSHI	target organ-specific hazard index
tpy	tons per year
TRIM.FaTE	Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
UF	uncertainty factor
UFIP	unmeasured fugitive and intermittent particulate
µg/m <sup>3</sup>	microgram per cubic meter
UMRA	Unfunded Mandates Reform Act
UPL	upper prediction limit
URE	unit risk estimate
U.S.	United States
USGS	U.S. Geological Survey
VCS	voluntary consensus standards
VE	visible emissions
VOC	volatile organic compound

*Organization of this document.* The information in this preamble is organized as follows:



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- I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use
- J. National Technology Transfer and Advancement Act. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51
- K. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

## I. General Information

### A. Does this action apply to me?

Table 1 of this preamble lists the NESHAP and associated regulated industrial source categories that are the subject of this proposal. Table 1 is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this proposal is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, state, local, and tribal government entities would not be affected by this proposal. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List* (see EPA-450/3-91-030), the Integrated Iron and Steel Manufacturing source category is any facility engaged in producing steel from iron ore. Integrated iron and steel manufacturing includes the following processes: sinter production, iron production, iron preparation (hot metal desulfurization), and steel production. The iron production process includes the production of iron in blast furnaces (BFs) by the reduction of iron-bearing materials with a hot gas. The steel production process includes basic oxygen processing furnaces (BOPF).

**Table 1. NESHAP and Industrial Source Categories Affected by This Proposal**

Source Category	NESHAP	NAICS Code <sup>1</sup>
Integrated Iron and Steel Manufacturing	40 CFR part 63, subpart FFFFF	331110

<sup>1</sup> North American Industry Classification System.

### B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposal at <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel->

*manufacturing-national-emission-standards*. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same website. Information on the overall RTR program is available at <https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html>.

A redline version of the regulatory language that incorporates the proposed changes in this action is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2002-0083).

## **II. Background**

### *A. What is the statutory authority for this action?*

The statutory authority for this action is provided by sections 112 and 301 of the CAA, as amended (42 U.S.C. 7401 *et seq.*). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of hazardous air pollutants (HAP) from stationary sources. Generally, the first stage involves establishing technology-based standards and the second stage involves evaluating those standards that are based on maximum achievable control technology (MACT) to determine whether additional standards are needed to address any remaining risk associated with HAP emissions. This second stage is commonly referred to as the “residual risk review.” In addition to the residual risk review, the CAA also requires the EPA to review standards set under CAA section 112 every 8 years to determine if there are “developments in practices, processes, or control technologies” that may be appropriate to incorporate into the standards. This review is commonly referred to as the “technology review.” When the two reviews are combined into a single rulemaking, it is commonly referred to as the “risk and technology review.” The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements. A more comprehensive discussion appears in the document titled *CAA Section 112*

*Risk and Technology Reviews: Statutory Authority and Methodology*, available in the docket for this rulemaking.

In the first stage of the CAA section 112 standard setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. “Major sources” are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. All other sources are “area sources.” For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT “floor.” The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as beyond-the-floor standards. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards where it is not feasible to prescribe or enforce a numerical emission standard. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards.

The second stage in standard-setting focuses on identifying and addressing any remaining (*i.e.*, “residual”) risk according to CAA section 112(f). For source categories subject to MACT standards, section 112(f)(2) of the CAA requires the EPA to determine whether promulgation of

additional standards is needed to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Section 112(d)(5) of the CAA provides that this residual risk review is not required for categories of area sources subject to GACT standards. Section 112(f)(2)(B) of the CAA further expressly preserves the EPA's use of the two-step approach for developing standards to address any residual risk and the Agency's interpretation of "ample margin of safety" developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the Risk Report that the Agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA-453/R-99-001, p. ES-11). The EPA subsequently adopted this approach in its residual risk determinations and the United States Court of Appeals for the District of Columbia Circuit (the Court) upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008).

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)<sup>1</sup> of approximately 1 in 10 thousand." 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions

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<sup>1</sup> Although defined as "maximum individual risk," MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk if an individual were exposed to the maximum level of a pollutant for a lifetime.

standards necessary to reduce risk to an acceptable level without considering costs. In the second step of the approach, the EPA considers whether the emissions standards provide an ample margin of safety to protect public health “in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.” *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety to protect public health or determine that the standards being reviewed provide an ample margin of safety without any revisions. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

CAA section 112(d)(6) separately requires the EPA to review standards promulgated under CAA section 112 and revise them “as necessary (taking into account developments in practices, processes, and control technologies)” no less often than every 8 years. In conducting this review, which we call the “technology review,” the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6).

*B. What is this source category and how does the current NESHAP regulate its HAP emissions?*

The EPA initially promulgated the Integrated Iron and Steel Manufacturing NESHAP on May 20, 2003 (68 FR 27646), under title 40, part 63, subpart FFFFF (the NESHAP). The rule was amended on July 13, 2006 (71 FR 39579). The amendments added a new compliance option,

revised emission limitations, reduced the frequency of repeat performance tests for certain emission units, added corrective action requirements, and clarified monitoring, recordkeeping, and reporting requirements. All documents used to develop the previous 2003 and 2006 final rules can be found in either the legacy docket, A-2000-44, or the electronic docket, EPA-HQ-OAR-2002-0083.

An Integrated Iron and Steel Manufacturing facility produces steel from iron ore pellets, coke, metal scrap, and other raw materials using furnaces and other processes. The Integrated Iron and Steel Manufacturing source category includes sinter production, iron preparation, iron production, and steel production. Currently there are 10 operating facilities and one idle facility in the source category.

The main sources of air toxics emissions from an Integrated Iron and Steel Manufacturing facility are from the BF; BOPF; hot metal transfer, desulfurization, and skimming (HMTDS) operations; ladle metallurgy operations; sinter plant windbox; sinter plant discharge end; and sinter cooler. All 11 facilities have BFs, BOPFs, HMTDS operations, and ladle metallurgy operations. However, only three facilities have sinter plants.

The NESHAP includes emissions limits for particulate matter (PM) and opacity standards (both of which are surrogates for PM HAP) for furnaces and sinter plants. The NESHAP also includes an operating limit for the oil content of the sinter plant feedstock or, as an alternative, an emissions limit for volatile organic compounds (VOC) for the sinter plant windbox exhaust stream. The oil limit, and the alternative VOC limit, serve as surrogates for all organic HAP.

#### *C. What data collection activities were conducted to support this action?*

The EPA issued a CAA section 114 information collection request (ICR) in 2010, including a facility questionnaire and source testing request, to nine parent companies, resulting

in information for 11 facilities. After testing was conducted and data were submitted, two of the 11 facilities became idle. However, one of these two facilities recently has restarted some of its operations. The other idle facility may shut down at the end of 2019.

The facility questionnaire was composed of six parts: General Facility Information, Previously Performed Testing and Test Report Data, Process and Emissions Control Device Tables, Startups and Shutdowns, Energy Consumption and Energy Projects, and Economics Section. The compilation of the facility responses can be found in the docket to this proposed rulemaking (EPA-HQ-OAR-2002-0083). Source testing was requested for HAP metals and PM at the following point sources: sinter plant windbox control device, sinter plant discharge end control device, BOPF primary and secondary control devices, BF stoves, BF control device, ladle metallurgy control devices, HMTDS control devices, and electric arc furnaces (EAFs) at 11 facilities. In addition, the sinter plant windbox control device and EAFs were required to test for VOC, polycyclic aromatic hydrocarbons (PAH), dioxins/furans, carbon disulfide, carbonyl sulfide, hydrochloric acid (HCl), and total hydrocarbons (THC). The compilation of source testing results can be found in the docket to this action (EPA-HQ-OAR-2002-0083). The EPA sent each facility its compiled testing results for review and corrections and incorporated their comments and revisions. The ICR data for point source emissions for the 11 existing facilities were used in the risk assessment dataset, as needed, and included all source testing results and questionnaire responses (*e.g.*, annual production, stack parameters, stack locations).

*D. What other relevant background information and data are available?*

In addition to point sources, the EPA identified seven unmeasured fugitive and intermittent particulate (UFIP) emission sources for this industry, including BF bleeder valve unplanned openings (also known as slips), BF bleeder valve planned openings, BF bell leaks, BF



casthouse fugitives, BF iron beaching, BF slag handling and storage operations, and BOPF shop fugitives. The UFIP sources are also referred to as nonpoint sources of emissions. These UFIP emission sources were identified by observation of visible plumes of fugitives being emitted from the seven UFIP sources during inspections by EPA Regional staff and documented in reports and photographs for years 2008 to present.<sup>2</sup> Two of these sources, BF casthouse fugitives and BOPF shop fugitives, are currently regulated by opacity limits in the rule.

The following are descriptions of the BF, BOPF, and then the seven UFIP sources. More detail can be found in the technical memorandum discussed below.

- BF is a key integrated iron and steel process unit where molten iron is produced from raw materials such as iron ore, lime, sinter, and coke.
- BOPF is a key integrated iron and steel process unit where steel is made from molten iron, scrap steel, and alloys.
- BOPF shop is the structure that houses the entire BOPF and auxiliary activities, such as hot iron transfer, skimming, and desulfurization of the iron, which generate fugitive emissions.
- BF casthouse is the structure that houses the lower portion of the BF and encloses iron and slag transport operations, which generate fugitive emissions.
- Bleeder valve is a device at the top of the BF that, when open, relieves BF internal pressure to the ambient air. The valve can operate as both a self-actuating safety device to relieve excess pressure and as an operator-initiated instrument for process control. A

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<sup>2</sup> Personal communication. B. Dickens and P. Miller, U.S. EPA Region V, Chicago, Illinois, with D. L. Jones, U.S. EPA, Office of Air Quality Planning and Standards, Office of Air and Radiation, U.S. EPA, Research Triangle Park, North Carolina. 2015-2018. See also the document titled *Ample Margin of Safety for Nonpoint Sources in the II&S Industry*, available in the docket to this rule.

bleeder valve opening means any opening of the BF bleeder valve, which allows gas and/or PM to flow past the sealing seat. Multiple openings and closings of a bleeder valve that occur within a 30-minute period could be considered a single bleeder valve opening. There are two types of openings (planned and unplanned).

- Planned bleeder valve opening means an opening that is initiated by an operator as part of a furnace startup, shutdown, or temporary idling for maintenance action. Operators can prepare the furnace for planned openings to minimize or eliminate emissions from the bleeder valves.
- Unplanned bleeder valve opening means an opening that is not planned and is due to excess pressure within the furnace that triggers opening of the valve. The pressure build up occurs when raw materials do not descend smoothly after being charged at the top of the BF and accumulate in large masses within the furnace. When the large masses finally are dislodged due to their weight, a pressure surge results.
- Slag is a by-product containing impurities that is released from the BF along with molten iron when the BF is tapped from the bottom of the furnace. The slag is less dense than iron and, therefore, floats on top and is removed by skimmers and then transported to open pits to cool to enable later removal. Usually there is one slag pit for every BF.
- Iron beaching occurs when iron from BF cannot be charged to the BOPF because of problems in steelmaking units; the hot molten iron from the BF is placed onto the ground, in some cases within a 3-sided structure.
- BF bells are part of the charging system on top of the furnace that allows for materials to be loaded into the furnace or next bell (as in the case of small bells) without letting BF gas escape. It is a two-bell system, where a smaller bell is above a larger bell. These bells

need to have a tight seal onto the blast furnace when not in use for charging so that BF gas and uncontrolled emissions do not escape to the atmosphere. But over time, the surfaces that seal the bells wear down and need to be repaired (as for small bells) or replaced (as for large bells). If these seals are not repaired or replaced in a timely manner, emissions of HAP (and PM) can increase significantly.

The EPA used several resources, including industry consultation, AP-42 emission factors, EPA studies, and other published technical documents to estimate emissions for the UFIP (or nonpoint) sources and to conduct a risk assessment for an example facility with the highest production in the industry. The risk assessment is explained in section III.C.3 below.

The seven UFIP sources and development of emissions estimates for these sources at the example facility are described in detail in two technical memoranda. One memorandum titled *Ample Margin of Safety for Nonpoint Sources in the II&S Industry*, available in the docket for this rule, describes the seven UFIP sources, work practices for control of HAP (and PM) emissions, the estimated costs of these work practices, and the estimated risk before and after implementation of work practices. The other memorandum, titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, also available in the docket, describes: (1) the development of emissions estimates for UFIP from processes where emissions from UFIP are thought to occur; (2) estimates of PM emissions from these processes at an example facility; (3) HAP to PM ratios used to estimate HAP emissions from the PM emissions estimates; and (4) the resulting HAP emissions estimated for the example facility. The memorandum also presents the modeling parameters used to model the dispersion of the HAP emitted from UFIP sources at the example facility, the results of the example facility risk

assessment, and a comparison of the risk assessment results to data from an ambient monitor near the example facility.

### **III. Analytical Procedures and Decision-Making**

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

#### *A. How do we consider risk in our decision-making?*

As discussed in section II.A of this preamble and in the Benzene NESHAP, in evaluating and developing standards under CAA section 112(f)(2), we apply a two-step approach to determine whether or not risks are acceptable and to determine if the standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, “the first step judgment on acceptability cannot be reduced to any single factor” and, thus, “[t]he Administrator believes that the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information.” 54 FR 38046, September 14, 1989. Similarly, with regard to the ample margin of safety determination, “the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.” *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient

(HQ) for acute exposures to HAP with the potential to cause noncancer health effects.<sup>3</sup> The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The scope of EPA's risk analysis is consistent with the EPA's response to comments on our policy under the Benzene NESHAP where the EPA explained that:

“[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing his expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in his judgment, believes are appropriate to determining what will ‘protect the public health’.”

See 54 FR 38057, September 14, 1989. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The Benzene NESHAP explained that “an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.” *Id.* at 38045. In other words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an

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<sup>3</sup> The MIR is defined as the cancer risk associated with a lifetime of exposure at the highest concentration of HAP where people are likely to live. The HQ is the ratio of the potential HAP exposure concentration to the noncancer dose-response value; the HI is the sum of HQs for HAP that affect the same target organ or organ system.

MIR below that level may be determined to be unacceptable, depending on all of the available health information. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: “EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.” *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify the HAP risk that may be associated with emissions from other facilities that do not include the source category under review, mobile source emissions, natural source emissions, persistent environmental pollution, or atmospheric transformation in the vicinity of the sources in the category.

The EPA understands the potential importance of considering an individual’s total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.*, reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health

effects. In May 2010, the Science Advisory Board (SAB) advised the EPA “that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area.”<sup>4</sup>

In response to the SAB recommendations, the EPA incorporates cumulative risk analyses into its RTR risk assessments, including those reflected in this proposal. The Agency (1) conducts facility-wide assessments, which include source category emission points, as well as other emission points within the facilities; (2) combines exposures from multiple sources in the same category that could affect the same individuals; and (3) for some persistent and bioaccumulative pollutants, analyzes the ingestion route of exposure. In addition, the RTR risk assessments consider aggregate cancer risk from all carcinogens and aggregated noncancer HQs for all noncarcinogens affecting the same target organ or target organ system.

Although we are interested in placing source category and facility-wide HAP risk in the context of total HAP risk from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Estimates of total HAP risk from emission sources other than those that we have studied in depth during this RTR review would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

#### *B. How do we perform the technology review?*

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<sup>4</sup> Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: [https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/\\$File/EP-A-SAB-10-007-unsigned.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EP-A-SAB-10-007-unsigned.pdf).

Our technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air environmental impacts. We also consider the emission reductions associated with applying each development. This analysis informs our decision of whether it is “necessary” to revise the emissions standards. In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a “development”:

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were



considered at the time we originally developed (or last updated) the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls to consider. See sections II.C and II. D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

*C. How do we estimate post-MACT risk posed by the source category?*

In this section, we provide a complete description of the types of analyses that we generally perform during the risk assessment process. In some cases, we do not perform a specific analysis because it is not relevant. For example, in the absence of emissions of HAP known to be persistent and bioaccumulative in the environment (PB-HAP), we would not perform a multipathway exposure assessment. Where we do not perform an analysis, we state that we do not and provide the reason. While we present all of our risk assessment methods, we only present risk assessment results for the analyses actually conducted (see section IV.A of this preamble).

The EPA conducts a risk assessment that provides estimates of the MIR for cancer posed by the HAP emissions from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the HQ for acute exposures to HAP with the potential to cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The eight sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the 2019 Risk and Technology Review*

*Proposed Rule.* The methods used to assess risk (as described in the eight primary steps below) are consistent with those described by the EPA in the document reviewed by a panel of the EPA's SAB in 2009;<sup>5</sup> and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

The point sources at Integrated Iron and Steel Manufacturing facilities include the BOPF primary and secondary control devices, BF stoves, BF control device, ladle metallurgy control devices, HMTDS control devices, BF cooling tower, sinter plant windbox control devices, and sinter plant discharge end control devices. Emissions estimates and release characteristics for all metal HAP (including mercury) for all the above affected point sources were derived from stack test data obtained through the ICR. In addition, emissions estimates and release characteristics for VOC, PAH, dioxins/furans, carbon disulfide, carbonyl sulfide, and THC were developed from stack test data at the exit from the sinter plant windbox control device that were obtained through the ICR. The derivation of all actual emissions estimates and release characteristics for point sources at Integrated Iron and Steel Manufacturing facilities are discussed in more detail in the document: *Integrated Iron and Steel Data Summary for Risk and Technology Review*, available in the docket for this proposed rulemaking.

As mentioned in section II.D above, emissions also were estimated for seven nonpoint sources for an example facility with the highest steel production in the industry. The seven UFIP sources and development of emissions estimates for these sources at the example facility are

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<sup>5</sup> U.S. EPA. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies – MACT I Petroleum Refining Sources and Portland Cement Manufacturing*, June 2009. EPA-452/R-09-006. Accessed at: <https://www3.epa.gov/airtoxics/rrisk/rtrpg.html>.

described in detail in the technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, available in the docket to this rule and summarized above.

## 2. How did we estimate MACT-allowable emissions?

The available emissions data in the RTR emissions dataset include estimates of the mass of HAP emitted during a specified annual time period. These “actual” emission levels are often lower than the emission levels allowed under the requirements of the current MACT standards. The emissions allowed under the MACT standards are referred to as the “MACT-allowable” emissions. We discussed the consideration of both MACT-allowable and actual emissions in the final Coke Oven Batteries RTR (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP RTR (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those actions, we noted that assessing the risk at the MACT-allowable level is inherently reasonable since that risk reflects the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044, September 14, 1989.)

Allowable emissions were calculated two ways, depending on the pollutant and whether PM was used as a surrogate for the pollutant in this NESHAP. The allowable emissions were set equal to the actual emissions for the following pollutants for which PM is not a surrogate: (1) mercury (total) from all process units; (2) carbon disulfide, carbonyl sulfide, dioxins/furans, HCl, naphthalene, PAH, benzene, toluene, ethyl benzene, and xylenes from the sinter plant windbox;

and (3) hydrogen cyanide from the BF waste water cooling tower. For the non-mercury metal HAP, which were regulated as PM in the NESHAP through emissions and opacity standards, the allowable emissions were estimated using a ratio of the current PM emissions standard to actual PM emissions measured in the ICR performance tests and applied to actual emissions measured for each non-mercury metal HAP in the ICR. Further details regarding the development of allowable emissions estimates are provided in the following document that summarizes all of the emissions and assumptions used to develop annual emissions for Integrated Iron and Steel Manufacturing facilities using the data from source test reports and other parts of the ICR: *Integrated Iron and Steel Data Summary for Risk and Technology Review*, available in the docket for this proposed rulemaking.

3. How do we conduct dispersion modeling, determine inhalation exposures, and estimate individual and population inhalation risk?

Both long-term and short-term inhalation exposure concentrations and health risk from the source category addressed in this proposal were estimated using the Human Exposure Model (HEM-3).<sup>6</sup> The HEM-3 performs three primary risk assessment activities: (1) conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources, and (3) estimating individual and population-level inhalation risk using the exposure estimates and quantitative dose-response information.

#### *a. Dispersion Modeling*

The air dispersion model AERMOD, used by the HEM-3 model, is one of the EPA's

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<sup>6</sup> For more information about HEM-3, go to <https://www.epa.gov/fera/risk-assessment-and-modeling-human-exposure-model-hem>.

preferred models for assessing air pollutant concentrations from industrial facilities.<sup>7</sup> To perform the dispersion modeling and to develop the preliminary risk estimates, HEM-3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2016) of hourly surface and upper air observations from 824 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block<sup>8</sup> internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant-specific dose-response values is used to estimate health risk. These are discussed below.

*b. Risk from Chronic Exposure to HAP*

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the source category. The HAP air concentrations at each nearby census block centroid located within 50 km of the facility are a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

For each facility, we calculate the MIR as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, 52 weeks per year, 70 years) exposure to the

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<sup>7</sup> U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

<sup>8</sup> A census block is the smallest geographic area for which census statistics are tabulated.

maximum concentration at the centroid of each inhabited census block. We calculate individual cancer risk by multiplying the estimated lifetime exposure to the ambient concentration of each HAP, in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), by its unit risk estimate (URE). The URE is an upper-bound estimate of an individual's incremental risk of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use UREs from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. The pollutant-specific dose-response values used to estimate health risk are available at <https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants>.

To estimate individual lifetime cancer risks associated with exposure to HAP emissions from each facility in the source category, we sum the risks for each of the carcinogenic HAP<sup>9</sup>

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<sup>9</sup> The EPA's 2005 *Guidelines for Carcinogen Risk Assessment* classifies carcinogens as: "carcinogenic to humans," "likely to be carcinogenic to humans," and "suggestive evidence of carcinogenic potential." These classifications also coincide with the terms "known carcinogen, probable carcinogen, and possible carcinogen," respectively, which are the terms advocated in the EPA's *Guidelines for Carcinogen Risk Assessment*, published in 1986 (51 FR 33992, September 24, 1986). In August 2000, the document *Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures* (EPA/630/R-00/002), was published as a supplement to the 1986 document. Copies of both documents can be obtained from <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20533&CFID=70315376&CFTOKEN=71597944>. Summing the risk of these individual compounds to obtain the cumulative cancer risk is an approach that was recommended by the EPA's SAB in their 2002 peer review of the EPA's National Air Toxics Assessment (NATA) titled *NATA - Evaluating the National-scale Air Toxics*

emitted by the modeled facility. We estimate cancer risk at every census block within 50 km of every facility in the source category. The MIR is the highest individual lifetime cancer risk estimated for any of those census blocks. In addition to calculating the MIR, we estimate the distribution of individual cancer risks for the source category by summing the number of individuals within 50 km of the sources whose estimated risk falls within a specified risk range. We also estimate annual cancer incidence by multiplying the estimated lifetime cancer risk at each census block by the number of people residing in that block, summing results for all of the census blocks, and then dividing this result by a 70-year lifetime.

To assess the risk of noncancer health effects from chronic exposure to HAP, we calculate either an HQ or a target organ-specific hazard index (TOSHI). We calculate an HQ when a single noncancer HAP is emitted. Where more than one noncancer HAP is emitted, we sum the HQ for each of the HAP that affects a common target organ or target organ system to obtain a TOSHI. The HQ is the estimated exposure divided by the chronic noncancer dose-response value, which is a value selected from one of several sources. The preferred chronic noncancer dose-response value is the EPA RfC, defined as “an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime”

([https://iaspub.epa.gov/sor\\_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary](https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary)). In cases where an RfC from the EPA’s IRIS is not available or where the EPA determines that using a value other than the RfC is

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*Assessment 1996 Data -- an SAB Advisory*, available at [https://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/\\$File/ecadv02001.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf).

appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to EPA: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (<https://www.atsdr.cdc.gov/mrls/index.asp>); (2) the CalEPA Chronic Reference Exposure Level (REL) (<https://oehha.ca.gov/air/crn/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>); or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA. The pollutant-specific dose-response values used to estimate health risks are available at <https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants>.

*c. Risk from Acute Exposure to HAP that May Cause Health Effects Other Than Cancer*

For each HAP for which appropriate acute inhalation dose-response values are available, the EPA also assesses the potential health risks due to acute exposure. For these assessments, the EPA makes conservative assumptions about emission rates, meteorology, and exposure location. In this proposed rulemaking, as part of our efforts to continually improve our methodologies to evaluate the risks that HAP emitted from categories of industrial sources pose to human health and the environment,<sup>10</sup> we are revising our treatment of meteorological data to use reasonable worst-case air dispersion conditions in our acute risk screening assessments instead of worst-case air dispersion conditions. This revised treatment of meteorological data and the supporting rationale are described in more detail in *Residual Risk Assessment for Integrated Iron and Steel Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed*

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<sup>10</sup> See, e.g., U.S. EPA. *Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis* (Draft Report, May 2017, <https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html>).



Rule and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment*. We will be applying this revision in RTR rulemakings proposed on or after June 3, 2019.

To assess the potential acute risk to the maximally exposed individual, we use the peak hourly emission rate for each emission point,<sup>11</sup> reasonable worst-case air dispersion conditions, and the point of highest off-site exposure. Specifically, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions co-occur and that a person is present at the point of maximum exposure.

To characterize the potential health risks associated with estimated acute inhalation exposures to a HAP, we generally use multiple acute dose-response values, including acute RELs, acute exposure guideline levels (AEGLs), and emergency response planning guidelines (ERPG) for 1-hour exposure durations), if available, to calculate acute HQs. The acute HQ is calculated by dividing the estimated acute exposure concentration by the acute dose-response value. For each HAP for which acute dose-response values are available, the EPA calculates acute HQs.

An acute REL is defined as “the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.”<sup>12</sup> Acute RELs are based on the most

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<sup>11</sup> In the absence of hourly emission data, we develop estimates of maximum hourly emission rates by multiplying the average actual annual emissions rates by a factor (either a category-specific factor or a default factor of 10) to account for variability. This is documented in *Residual Risk Assessment for Integrated Iron and Steel Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report titled *Technical Support Document for Acute Risk Screening Assessment*. Both are available in the docket for this rulemaking.

<sup>12</sup> CalEPA issues acute RELs as part of its Air Toxics Hot Spots Program, and the 1-hour and 8-hour values are documented in *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants*, which is

sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. They are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to 8 hours.<sup>13</sup> They are guideline levels for “once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.” *Id.* at 21. The AEGL–1 is specifically defined as “the airborne concentration (expressed as ppm (parts per million) or mg/m<sup>3</sup> (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.” The document also notes that “Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.” *Id.* AEGL–2 are defined as “the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or

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available at <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>.

<sup>13</sup> National Academy of Sciences, 2001, document titled *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals*, on page 2. Available at [https://www.epa.gov/sites/production/files/2015-09/documents/sop\\_final\\_standing\\_operating\\_procedures\\_2001.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/sop_final_standing_operating_procedures_2001.pdf). Note that the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances ended in October 2011, but the AEGL program continues to operate at the EPA and works with the National Academies to publish final AEGLs (<https://www.epa.gov/aegl>).

an impaired ability to escape.” *Id.*

ERPGs are “developed for emergency planning and are intended as health-based guideline concentrations for single exposures to chemicals.”<sup>14</sup> *Id.* at 1. The ERPG–1 is defined as “the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.” *Id.* at 2. Similarly, the ERPG–2 is defined as “the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual’s ability to take protective action.” *Id.* at 1.

An acute REL for 1-hour exposure durations is typically lower than its corresponding AEGL–1 and ERPG–1. Even though their definitions are slightly different, AEGL–1s are often the same as the corresponding ERPG–1s, and AEGL–2s are often equal to ERPG–2s. The maximum HQs from our acute inhalation screening risk assessment typically result when we use the acute REL for a HAP. In cases where the maximum acute HQ exceeds 1, we also report the HQ based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1).

For this source category, a factor of 2 was applied to the actual emissions to calculate the acute emissions. The multiplier is based on the NESHAP provision that allows an opacity (20 percent) once per steel production cycle that is twice the opacity limit applicable at all other

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<sup>14</sup> *ERPGS Procedures and Responsibilities*. March 2014. American Industrial Hygiene Association. Available at: <https://www.aiha.org/get-involved/AIHAGuidelineFoundation/EmergencyResponsePlanningGuidelines/Documents/ERPG%20Committee%20Standard%20Operating%20Procedures%20%20-%20March%202014%20Revision%20%28Updated%2010-2-2014%29.pdf>.

times (10 percent). For buildings that house BOPF operations, the rule states: “You must not cause to be discharged to the atmosphere any secondary emissions... that exhibit opacity (for any set of 6-minute averages) greater than 10 percent, except that one 6-minute period not to exceed 20 percent may occur once per steel production cycle.” (see Table 1 to subpart FFFFF).

In our acute inhalation screening risk assessment, acute impacts are deemed negligible for HAP for which acute HQs are less than or equal to 1, and no further analysis is performed for these HAP. In cases where an acute HQ from the screening step is greater than 1, we assess the site-specific data to ensure that the acute HQ is at an off-site location.

#### 4. How do we conduct the multipathway exposure and risk screening assessment?

The EPA conducts a tiered screening assessment examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.*, ingestion). We first determine whether any sources in the source category emit any HAP known to be persistent and bioaccumulative in the environment, as identified in the EPA’s Air Toxics Risk Assessment Library (see Volume 1, Appendix D, at <https://www.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library>).

For the Integrated Iron and Steel Manufacturing source category, we identified PB-HAP emissions of arsenic, cadmium, dioxins/furans, lead, mercury and polycyclic organic matter (POM), so we proceeded to the next step of the evaluation. Except for lead, the human health risk screening assessment for PB-HAP consists of three progressive tiers. In a Tier 1 screening assessment, we determine whether the magnitude of the facility-specific emissions of PB-HAP warrants further evaluation to characterize human health risk through ingestion exposure. To facilitate this step, we evaluate emissions against previously developed screening threshold emission rates for several PB-HAP that are based on a hypothetical upper-end screening

exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB-HAP with screening threshold emission rates are arsenic compounds, cadmium compounds, chlorinated dibenzodioxins and furans, mercury compounds, and POM. Based on EPA estimates of toxicity and bioaccumulation potential, these pollutants represent a conservative list for inclusion in multipathway risk assessments for RTR rules (see Volume 1, Appendix D at [https://www.epa.gov/sites/production/files/2013-08/documents/volume\\_1\\_reflibrary.pdf](https://www.epa.gov/sites/production/files/2013-08/documents/volume_1_reflibrary.pdf).) In this assessment, we compare the facility-specific emission rates of these PB-HAP to the screening threshold emission rates for each PB-HAP to assess the potential for significant human health risks via the ingestion pathway. We call this application of the TRIM.FaTE model the Tier 1 screening assessment. The ratio of a facility's actual emission rate to the Tier 1 screening threshold emission rate is a "screening value" (SV).

We derive the Tier 1 screening threshold emission rates for these PB-HAP (other than lead compounds) to correspond to a maximum excess lifetime cancer risk of 1-in-1 million (*i.e.*, for arsenic compounds, chlorinated dibenzodioxins and furans and POM), or, for HAP that cause noncancer health effects (*i.e.*, cadmium compounds and mercury compounds), a maximum HQ of 1. If the emission rate of any one PB-HAP or combination of carcinogenic PB-HAP in the Tier 1 screening assessment exceeds the Tier 1 screening threshold emission rate for any facility (*i.e.*, the SV is greater than 1), we conduct a second screening assessment, which we call the Tier 2 screening assessment. The Tier 2 screening assessment separates the Tier 1 combined fisher and farmer exposure scenario into fisher, farmer, and gardener scenarios that retain upper-bound ingestion rates.

In the Tier 2 screening assessment, the location of each facility that exceeds a Tier 1 screening threshold emission rate is used to refine the assumptions associated with the Tier 1 fisher and farmer exposure scenarios at that facility. A key assumption in the Tier 1 screening assessment is that a lake and/or farm is located near the facility. As part of the Tier 2 screening assessment, we use a U.S. Geological Survey (USGS) database to identify actual waterbodies within 50 km of each facility and assume the fisher only consumes fish from lakes within that 50 km zone. We also examine the differences between local meteorology near the facility and the meteorology used in the Tier 1 screening assessment. We then adjust the previously-developed Tier 1 screening threshold emission rates for each PB-HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with the use of local meteorology and USGS lakes database. In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km of the facility and that the farmer consumes meat, eggs, dairy, vegetables, and fruit produced near the facility. We may further refine the Tier 2 screening analysis by assessing a gardener scenario to characterize a range of exposures, with the gardener scenario being more plausible in RTR evaluations. Under the gardener scenario, we assume the gardener consumes home-produced eggs, vegetables, and fruit products at the same ingestion rate as the farmer. The Tier 2 screen continues to rely the high-end food intake assumptions that were applied in Tier 1 for local fish (adult female angler at 99<sup>th</sup> percentile fish consumption<sup>15</sup>) and locally grown or raised foods (90<sup>th</sup> percentile consumption of locally grown or raised foods for the farmer and gardener scenarios<sup>16</sup>). If PB-HAP emission rates

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<sup>15</sup> Burger, J. 2002. Daily consumption of wild fish and game: Exposures of high end recreationists. *International Journal of Environmental Health Research* 12:343–354.

<sup>16</sup> U.S. EPA. *Exposure Factors Handbook 2011 Edition (Final)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/052F, 2011.

do not result in a Tier 2 SV greater than 1, we consider those PB-HAP emissions to pose risks below a level of concern. If the PB-HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

There are several analyses that can be included in a Tier 3 screening assessment, depending upon the extent of refinement warranted, including validating that the lakes are fishable, locating residential/garden locations for urban and/or rural settings, considering plume-rise to estimate emissions lost above the mixing layer, and considering hourly effects of meteorology and plume rise on chemical fate and transport (a time-series analysis). If necessary, the EPA may further refine the screening assessment through a site-specific assessment.

In evaluating the potential multipathway risk from emissions of lead compounds, rather than developing a screening threshold emission rate, we compare maximum estimated chronic inhalation exposure concentrations to the level of the current National Ambient Air Quality Standard (NAAQS) for lead.<sup>17</sup> Values below the level of the primary (health-based) lead NAAQS are considered to have a low potential for multipathway risk.

For further information on the multipathway assessment approach, see the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

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<sup>17</sup> In doing so, the EPA notes that the legal standard for a primary NAAQS – that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b)) – differs from the CAA section 112(f) standard (requiring, among other things, that the standard provide an “ample margin of safety to protect public health”). However, the primary lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.*, the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population – children, including children living near major lead emitting sources. 73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1. In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

## 5. How do we assess risks considering emissions control options?

For point sources, as described in the ample margin of safety analysis section of this preamble, we assessed risks for a few possible control options to address risks due to emissions from some point sources for a few HAP that were driving the risks from point sources. For those few HAP and sources, we evaluated possible control technologies (such as activated carbon injection and wet electrostatic precipitators) and estimated the costs and the reduction in risks that would be achieved by those control technologies.

For nonpoint emission sources, we estimated risks at an example facility before and after potential emission reductions that could be achieved by control options based on application of various work practices (see section IV.B of this preamble for further details). The analyses, control options, and estimated risks for the example facility before and after implementation of the potential work practices are described in section IV.B of this preamble and also in the technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, available in the docket to this rule.

## 6. How do we conduct the environmental risk screening assessment?

### *a. Adverse Environmental Effect, Environmental HAP, and Ecological Benchmarks*

The EPA conducts a screening assessment to examine the potential for an adverse environmental effect as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines “adverse environmental effect” as “any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.”



The EPA focuses on eight HAP, which are referred to as “environmental HAP,” in its screening assessment: six PB-HAP and two acid gases. The PB-HAP included in the screening assessment are arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. The acid gases included in the screening assessment are HCl and hydrogen fluoride (HF).

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment, and water. The acid gases, HCl and HF, are included due to their well-documented potential to cause direct damage to terrestrial plants. In the environmental risk screening assessment, we evaluate the following four exposure media: terrestrial soils, surface water bodies (includes water-column and benthic sediments), fish consumed by wildlife, and air. Within these four exposure media, we evaluate nine ecological assessment endpoints, which are defined by the ecological entity and its attributes. For PB-HAP (other than lead), both community-level and population-level endpoints are included. For acid gases, the ecological assessment evaluated is terrestrial plant communities.

An ecological benchmark represents a concentration of HAP that has been linked to a particular environmental effect level. For each environmental HAP, we identified the available ecological benchmarks for each assessment endpoint. We identified, where possible, ecological benchmarks at the following effect levels: probable effect levels, lowest-observed-adverse-effect level, and no-observed-adverse-effect level. In cases where multiple effect levels were available for a particular PB-HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

For further information on how the environmental risk screening assessment was

conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

*b. Environmental Risk Screening Methodology*

For the environmental risk screening assessment, the EPA first determined whether any facilities in the Integrated Iron and Steel Manufacturing source category emitted any of the environmental HAP. For the Integrated Iron and Steel Manufacturing source category, we identified emissions of arsenic, cadmium, dioxins/furans, lead, POM (as PAH), mercury, and HCl. Because one or more of the environmental HAP evaluated are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

*c. PB-HAP Methodology*

The environmental screening assessment includes six PB-HAP, arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. With the exception of lead, the environmental risk screening assessment for PB-HAP consists of three tiers. The first tier of the environmental risk screening assessment uses the same health-protective conceptual model that is used for the Tier 1 human health screening assessment. TRIM.FaTE model simulations were used to back-calculate Tier 1 screening threshold emission rates. The screening threshold emission rates represent the emission rate in tons of pollutant per year that results in media concentrations at the facility that equal the relevant ecological benchmark. To assess emissions from each facility in the category, the reported emission rate for each PB-HAP was compared to the Tier 1 screening threshold emission rate for that PB-HAP for each assessment endpoint and effect level. If emissions from a

facility do not exceed the Tier 1 screening threshold emission rate, the facility “passes” the screening assessment, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening threshold emission rate, we evaluate the facility further in Tier 2.

In Tier 2 of the environmental screening assessment, the screening threshold emission rates are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier 1 screening assessment. For soils, we evaluate the average soil concentration for all soil parcels within a 7.5-km radius for each facility and PB-HAP. For the water, sediment, and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier 2 screening threshold emission rate, the facility “passes” the screening assessment and typically is not evaluated further. If emissions from a facility exceed the Tier 2 screening threshold emission rate, we evaluate the facility further in Tier 3.

As in the multipathway human health risk assessment, in Tier 3 of the environmental screening assessment, we examine the suitability of the lakes around the facilities to support life and remove those that are not suitable (*e.g.*, lakes that have been filled in or are industrial ponds), adjust emissions for plume-rise, and conduct hour-by-hour time-series assessments. If these Tier 3 adjustments to the screening threshold emission rates still indicate the potential for an adverse environmental effect (*i.e.*, facility emission rate exceeds the screening threshold emission rate), we may elect to conduct a more refined assessment using more site-specific information. If, after additional refinement, the facility emission rate still exceeds the screening threshold emission rate, the facility may have the potential to cause an adverse environmental effect.

To evaluate the potential for an adverse environmental effect from lead, we compared the

average modeled air concentrations (from HEM-3) of lead around each facility in the source category to the level of the secondary NAAQS for lead. The secondary lead NAAQS is a reasonable means of evaluating environmental risk because it is set to provide substantial protection against adverse welfare effects which can include “effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

#### *d. Acid Gas Environmental Risk Methodology*

The environmental screening assessment for acid gases evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to HF and HCl. The environmental risk screening methodology for acid gases is a single-tier screening assessment that compares modeled ambient air concentrations (from AERMOD) to the ecological benchmarks for each acid gas. To identify a potential adverse environmental effect (as defined in section 112(a)(7) of the CAA) from emissions of HF and HCl, we evaluate the following metrics: the size of the modeled area around each facility that exceeds the ecological benchmark for each acid gas, in acres and km<sup>2</sup>; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average SV around each facility (calculated by dividing the area-weighted average concentration over the 50-km modeling domain by the ecological benchmark for each acid gas). For further information on the environmental screening assessment approach, see Appendix 9 of the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

7. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire “facility,” where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data.

For this source category, we conducted the facility-wide assessment using a dataset compiled from the 2014 National Emissions Inventory (NEI). The source category records of that NEI dataset were removed, evaluated, and updated as described in section II.C of this preamble (“What data collection activities were conducted to support this action?”). Once a quality assured source category dataset was available, it was placed back with the remaining records from the NEI for that facility. The facility-wide file was then used to analyze risks due to the inhalation of HAP that are emitted “facility-wide” for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of the facility-wide risks that could be attributed to the source category addressed in this proposal. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

8. How do we consider uncertainties in risk assessment?

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. Also included are those uncertainties specific to our acute screening assessments, multipathway screening assessments, and our environmental risk screening assessments. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action. If a multipathway site-specific assessment was performed for this source category, a full discussion of the uncertainties associated with that assessment can be found in Appendix 11 of that document titled *Site-Specific Human Health Multipathway Residual Risk Assessment Report*, available in the docket for this action.

*a. Uncertainties in the RTR Emissions Datasets*

Although the development of the RTR emissions datasets involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emission estimates, and other factors. The emission estimates for point sources considered in this analysis generally are three-run averages and, therefore, do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emission rates for the acute effects screening assessment were based on an emission adjustment factor applied to the estimated

emission rates and are intended to account for emission fluctuations due to normal facility operations.

The emissions from nonpoint sources were included in the risk assessment in an example facility analysis to assess the potential risk contributed by UFIP and the effect that omission of these sources from the source category could affect the estimate of risks for the source category as a whole. However, emission estimates for the nonpoint sources, in most cases, were based on available emission factors developed (many by the EPA) before 1980 and, in some cases, were developed from only a few facilities and included poor quality data as determined by the EPA's emission factor quality rating system (see <https://www.epa.gov/air-emissions-factors-and-quantification/basic-information-air-emissions-factors-and-quantification>), or originally were developed for other processes. In addition, the example facility had a higher arsenic-to-PM ratio for the BF in the ICR data compared to other facilities. Furthermore, the industry provided additional, more recent test data for the example facility that indicate arsenic emissions are likely lower than the level we had estimated based on the 2011 ICR data that we used in our analysis.<sup>18</sup> Therefore, we conclude our risk results are conservative (upper limit) estimates of the potential risks due to nonpoint sources and should be viewed more as a qualitative indication of potential upper end risks rather than a quantitative assessment of risk from nonpoint sources.

The development of emissions estimates for the nonpoint sources at the example facility as well as emissions estimates considered but not used in this proposal are described in detail in the technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing*

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<sup>18</sup> Paul Balserak, 2019. Letter and attachment from P. Balserak, American Iron and Steel Institute, Washington, DC, to C. French, U.S. EPA, Research Triangle Park, NC. 34 pages. February 4, 2019.

*Facility for Input to the RTR Risk Assessment*, available in the docket for this action.

*b. Uncertainties in Dispersion Modeling*

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (*e.g.*, not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (*e.g.*, not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (*e.g.*, meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations. We also note that the selection of meteorology dataset location could have an impact on the risk estimates. As we continue to update and expand our library of meteorological station data used in our risk assessments, we expect to reduce this variability.

*c. Uncertainties in Inhalation Exposure Assessment*

Although every effort is made to identify all of the relevant facilities and emission points, as well as to develop accurate estimates of the annual emission rates for all relevant HAP, the uncertainties in our emission inventory likely dominate the uncertainties in the exposure assessment. Some uncertainties in our exposure assessment include human mobility, using the centroid of each census block, assuming lifetime exposure, and assuming only outdoor exposures. For most of these factors, there is neither an under nor overestimate when looking at



the maximum individual risk or the incidence, but the shape of the distribution of risks may be affected. With respect to outdoor exposures, actual exposures may not be as high if people spend time indoors, especially for very reactive pollutants or larger particles. For all factors, we reduce uncertainty when possible. For example, with respect to census-block centroids, we analyze large blocks using aerial imagery and adjust locations of the block centroids to better represent the population in the blocks. We also add additional receptor locations where the population of a block is not well represented by a single location.

#### *d. Uncertainties in Dose-Response Relationships*

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties are generally expressed quantitatively, and others are generally expressed in qualitative terms. We note, as a preface to this discussion, a point on dose-response uncertainty that is stated in the EPA's *2005 Guidelines for Carcinogen Risk Assessment*; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (the EPA's *2005 Guidelines for Carcinogen Risk Assessment*, page 1-7). This is the approach followed here as summarized in the next paragraphs.

Cancer UREs used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk.<sup>19</sup> That is, they represent a "plausible upper limit to the true value of a quantity" (although this is usually not a true statistical confidence

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<sup>19</sup> IRIS glossary ([https://ofmpub.epa.gov/sor\\_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary](https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary)).

limit). In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.<sup>20</sup> Chronic noncancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. To derive dose-response values that are intended to be “without appreciable risk,” the methodology relies upon an uncertainty factor (UF) approach,<sup>21</sup> which considers uncertainty, variability, and gaps in the available data. The UFs are applied to derive dose-response values that are intended to protect against appreciable risk of deleterious effects.

Many of the UFs used to account for variability and uncertainty in the development of acute dose-response values are quite similar to those developed for chronic durations. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.*, 4 hours) to derive an acute dose-response value at another exposure duration (*e.g.*, 1 hour). Not all acute dose-response values are developed for the same purpose, and care must be taken when interpreting the results of an acute assessment of human health effects relative to the dose-response value or values being exceeded. Where relevant to the estimated exposures, the lack of acute dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Uncertainty also exists in the selection of ecological benchmarks for the environmental risk screening assessment. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint.

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<sup>20</sup> An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

<sup>21</sup> See *A Review of the Reference Dose and Reference Concentration Processes*, U.S. EPA, December 2002, and *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry*, U.S. EPA, 1994.

We searched for benchmarks for three effect levels (*i.e.*, no-effects level, threshold-effect level, and probable effect level), but not all combinations of ecological assessment/environmental HAP had benchmarks for all three effect levels. Where multiple effect levels were available for a particular HAP and assessment endpoint, we used all of the available effect levels to help us determine whether risk exists and whether the risk could be considered significant and widespread.

Although we make every effort to identify appropriate human health effect dose-response values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by this source category are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for an IRIS assessment for that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including consideration of HAP reductions achieved by various control options.

For a group of compounds that are unspciated (*e.g.*, glycol ethers), we conservatively use the most protective dose-response value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (*e.g.*, ethylene glycol diethyl ether) that

does not have a specified dose-response value, we also apply the most protective dose-response value from the other compounds in the group to estimate risk.

*e. Uncertainties in Acute Inhalation Screening Assessments*

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology, and the presence of a person. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions (*i.e.*, 99<sup>th</sup> percentile) co-occur. We then include the additional assumption that a person is located at this point at the same time. Together, these assumptions represent a reasonable worst-case actual exposure scenario. In most cases, it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and reasonable worst-case air dispersion conditions occur simultaneously.

*f. Uncertainties in the Multipathway and Environmental Risk Screening Assessments*

For each source category, we generally rely on site-specific levels of PB-HAP or environmental HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary or whether it is necessary to perform an environmental screening assessment. This determination is based on the results of a three-tiered screening assessment that relies on the outputs from models - TRIM.FaTE and AERMOD - that estimate environmental pollutant concentrations and human exposures for five PB-HAP (chlorinated dibenzodioxins and furans, POM, mercury, cadmium, and arsenic) and two acid gases (HF and HCl). For lead, we use AERMOD to determine ambient air concentrations, which are then

compared to the secondary NAAQS standard for lead. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.<sup>22</sup>

Model uncertainty concerns whether the model adequately represents the actual processes (e.g., movement and accumulation) that might occur in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screening assessments are appropriate and state-of-the-art for the multipathway and environmental screening risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the multipathway and environmental screening assessments, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally representative datasets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water, soil characteristics, and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway and environmental screening assessments, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using

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<sup>22</sup> In the context of this discussion, the term “uncertainty” as it pertains to exposure and risk encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

upper-end national values, and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screening assessment. In Tier 3 of the screening assessments, we refine the model inputs again to account for hour-by-hour plume rise and the height of the mixing layer. We can also use those hour-by-hour meteorological data in a TRIM.FaTE run using the screening configuration corresponding to the lake location. These refinements produce a more accurate estimate of chemical concentrations in the media of interest, thereby reducing the uncertainty with those estimates. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for all three tiers.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For all tiers of the multipathway and environmental screening assessments, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do not exceed screening threshold emission rates (*i.e.*, screen out), we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do exceed screening threshold emission rates, it does not mean that

impacts are significant, only that we cannot rule out that possibility and that a refined assessment for the site might be necessary to obtain a more accurate risk characterization for the source category.

The EPA evaluates the following HAP in the multipathway and/or environmental risk screening assessments, where applicable: arsenic, cadmium, dioxins/furans, lead, mercury (both inorganic and methyl mercury), POM, HCl, and HF. These HAP represent pollutants that can cause adverse impacts either through direct exposure to HAP in the air or through exposure to HAP that are deposited from the air onto soils and surface waters and then through the environment into the food web. These HAP represent those HAP for which we can conduct a meaningful multipathway or environmental screening risk assessment. For other HAP not included in our screening assessments, the model has not been parameterized such that it can be used for that purpose. In some cases, depending on the HAP, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond these that we are evaluating may have the potential to cause adverse effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

#### **IV. Analytical Results and Proposed Decisions**

##### *A. What are the results of the risk assessment and analyses?*

##### **1. Chronic Inhalation Risk Assessment Results for Point Sources**

Table 2 of this preamble provides a summary of the results of the inhalation risk assessment for point source emissions for the source category. More detailed information on the risk assessment can be found in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review*

2019 Proposed Rule, available in the docket for this rule. Risks associated with sources of nonpoint emissions are discussed in a subsequent section below.

**Table 2. Integrated Iron and Steel Manufacturing Inhalation Risk Assessment Results for Point Sources**

Number of Facilities <sup>1</sup>	Maximum Individual Cancer Risk (in 1 million) <sup>2</sup> based on...		Population at Increased Risk of Cancer ≥ 1-in-1 Million based on...		Annual Cancer Incidence (cases per year) based on...		Maximum Chronic Noncancer TOSHI based on...		Maximum Screening Acute Noncancer HQ <sup>3</sup> based on...
	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions	Allowable Emissions	Actual Emissions
11	10	70	64,000	6,000,000	0.03	0.3	0.1 (developmental)	0.9 (developmental)	0.3 (arsenic)

<sup>1</sup> Number of facilities evaluated in the risk analysis.

<sup>2</sup> Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

<sup>3</sup> As REL. The maximum estimated acute exposure concentration was divided by available short-term dose-response values to develop an array of HQ values. HQ values shown use the lowest available acute dose-response value, which in most cases is the REL. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

Results of the inhalation risk assessment based on actual point source emissions indicate that the increased risk of cancer for the individual most exposed due to actual emissions could be as high as 10-in-1 million, with chromium VI compound emissions from the BF process as the major contributor to the risk. The total estimated cancer incidence from point sources for this source category is 0.03 excess cancer cases per year, or one excess case about every 33 years. About 64,000 people are estimated to have cancer risks at or above 1-in-1 million from HAP emitted from the point sources in this source category, with 60 of those people estimated to have cancer risks greater than or equal to 10-in-1 million. The maximum chronic noncancer TOSHI due to the point sources in the source category could be up to 0.1 (developmental) driven by emissions of arsenic and lead compounds from the oxygen furnace. No individual would have exposures resulting in a TOSHI ratio at or above 1. See the risk document referenced above for details of these analyses.



Results of the inhalation risk assessment based on MACT-allowable point source emissions indicate that the cancer MIR could be as high as 70-in-1 million with arsenic compounds, chromium VI compounds, nickel compounds, and cadmium compound emissions driving the risks. The maximum chronic noncancer TOSHI (developmental) could be as high as 0.9 based upon the MACT-allowable emissions level, with arsenic compounds and lead compounds driving the TOSHI. The total estimated cancer incidence from the point sources in this source category considering allowable emissions is estimated to be about 0.3 excess cancer cases per year or 1 excess case about every 3 years. Based on allowable emission rates, approximately 6,000,000 people are estimated to have cancer risks at or above 1-in-1 million, with 80,000 of those people estimated to have cancer risks at or above 10-in-1 million. No individuals are estimated to have exposures that result in a noncancer HI at or above 1 at allowable emission rates.

## 2. Screening Level Acute Risk Assessment Results for Point Sources

As shown in Table 2 of this preamble, the worst-case acute HQ (based on the REL) is 0.3, driven by emissions of arsenic from oxygen furnace and BF operations. This value is the highest HQ that is outside facility boundaries and is based on the assumption that hourly arsenic compound emissions from the BOPF and BF are 2 times the hourly emissions in the actual emissions. No facilities are estimated to have an HQ greater than or equal to 1 based on any benchmark (REL, AEGL, or EPRG). Acute risk estimates for each facility and pollutant are provided in the risk document referenced above.

## 3. Inhalation Risk Results for Nonpoint and Point Sources at An Example Facility

After the EPA conducted the initial risk assessment for point sources only, a cursory comparison of those results with available ambient monitoring data at an example facility (U.S.

Steel Gary Works located in Gary, Indiana) indicated that we may have underestimated the total facility emissions and that there may be other sources of category emissions not included in the point inventory. Furthermore, we obtained information from EPA Region V staff based on visual observations and ambient monitor measurements near some Integrated Iron and Steel Manufacturing facilities suggesting that there were sources of unmeasured fugitive and intermittent emissions (UFIP, or nonpoint emissions) that had not been included in the inventories yet nor included in any of the modeling runs. These emissions may account for the apparent initial underestimation of total facility emissions. Therefore, to address the apparent gap in emissions or sources, we investigated, evaluated, and estimated the potential emissions from nonpoint sources. These emissions are discussed in more detail below. The information and visual observations we obtained from Region V staff along with our assumptions and other details about the nonpoint sources and their emissions are discussed in the memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, available in the docket for this proposed rule and summarized above.

Based on the outcome of this investigation and evaluation, as described in section II.D above, the EPA estimated potential HAP emissions from seven nonpoint sources for the example facility to determine if the nonpoint sources could account for discrepancies in modeled versus monitored air concentrations. The example facility is the largest facility in the source category based on production capacity and also had the highest estimated HAP emissions from steel-making sources (*i.e.*, facility emissions not including sinter plant emissions). The seven nonpoint sources are: BF bleeder valve unplanned openings (also known as slips); BF bleeder valve planned openings; BF bell leaks; BF casthouse fugitives; BF iron beaching; BF slag handling and

storage operations; and BOPF shop fugitives. The EPA developed a risk model input file for these seven nonpoint sources for this one large example facility. Next, we combined these emissions estimates with the point source emissions sources to create a risk model input file for the example facility with both point sources and nonpoint sources. Finally, the EPA conducted a risk assessment using upper-end emissions estimates to evaluate the potential exposures and risks due to all the emissions for this one example facility. Given the uncertainties regarding nonpoint source emissions, as described in section III.C.8 and further below, we expect that the risk results would over-predict the actual risks. The EPA primarily conducted this assessment to obtain a qualitative understanding of the potential risks from nonpoint sources at the facilities.

Based on the results of the EPA's inhalation risk analysis for the example facility, the estimated MIR for actual emissions increased from 2-in-1 million (for point sources alone) to about 20-in-1 million when UFIP emissions are added to point sources emissions. The noncancer HI for actual emissions increased from 0.03 to 0.3 when the UFIP emissions were added to the estimated point source emissions for this facility. Acute noncancer HQ (based on the REL) increased from <1 to 3 (for comparison, the acute HI was not refined to the potential value at an offsite location) when UFIP emissions of arsenic were added to arsenic from point sources. Likewise, the affected population near the example facility with estimated cancer risks greater than or equal to 1-in-1 million also increased when UFIP emissions were added, from 3,000 to 4,000,000 people (with the upper value encompassing most of the city of Chicago because of the close proximity of Gary, Indiana). The estimated UFIP emissions affect a wider area than point sources with, consequently, a greater exposed population. The plumes associated with fugitive emissions are emitted at a relatively lower height than most point sources resulting in a higher ground-level concentration that takes longer to fall below levels of concern (such as 1-in-1

million risk levels). Thus, a larger population (including the city of Chicago) is estimated to be exposed to cancer risks greater than or equal to 1-in-1 million from these low-level fugitive emissions based on the EPA's example facility risk assessment using upper-end emissions estimates.

In the EPA's analysis, when UFIP emissions are added to point source emissions at the example facility, the MIR based on allowable emissions for UFIP and point sources increased from about 30-in-1 million to about 50-in-1 million and the noncancer HI increased from 0.3 to 0.7. The affected population with risk greater than or equal to 10-in-1 million also increased when considering UFIP emissions. The overall results for the EPA's example facility risk assessment for actual and allowable emissions are presented in Table 3 of this preamble. For both actual and allowable emission scenarios, the increases in risk when considering the UFIP emissions primarily were a result of fugitive and intermittent HAP metal emissions from the BF casthouse and BOPF shop operations. Table 4 of this preamble presents the estimated percent contribution from each of the emissions sources to the total MIR for the example facility. Further details on the risk analysis for the UFIP emissions can be found in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

**Table 3. Inhalation Risk Estimates for Point and Nonpoint Sources for an Example Facility Based on EPA's Analysis**

Emissions	Example Facility Sources	Inhalation Chronic Cancer Risks				Inhalation Chronic Noncancer Risks		Acute Noncancer Risks	
		MIR (in 1 Million)	Incidence	Population with Risks > 1-in-1 Million	Population with Risks > 10-in-1 Million	Max HI	Target Organ	Max HQ	Pollutant
Actual	Risks for	2	0.010	3,000	0	0.03	Developmental	0.3	Arsenic

	Point Sources Only								
	Risks for Nonpoint Emissions & Point Sources	20	0.12	4,000,000	9,000	0.3	Developmental	3	Arsenic
Allowables	Risks for Point Sources Only	30	0.13	4,000,000	11,000	0.3	Developmental	-	-
	Risks for Nonpoint Emissions & Point Sources	50	0.24	4,000,000	90,000	0.7	Developmental	-	-

**Table 4. Estimated Percent Contribution to the MIR for all Emissions Sources at the Example Facility based on EPA's Estimated Actual Emissions**

<b>Estimated Percent Contribution to the Total MIR of 20-in-1 Million</b>	<b>Emissions Source</b>
50%	BF casthouse (fugitives)
21%	BOPF shop (fugitives)
9%	BF bell leaks (fugitives)
8%	All point sources combined
5%	BF planned openings (intermittent)
4%	BF unplanned openings/Slips (intermittent)
2%	BF slag handling (fugitives)
2%	BF beaching (intermittent, fugitive)
100%	Total

As described in section III.C.8 above, there are uncertainties in the EPA's emissions estimates for the nonpoint sources used in the example facility risk analysis since the estimates

are based on emission factors (some of which are relatively old) and many assumptions, especially where emission factors from other processes are used as estimates for UFIP sources. In addition, the example facility had a higher arsenic-to-PM ratio for the BF in the 2011 ICR data compared to other facilities. Subsequently, the American Iron and Steel Institute (AISI) provided additional, more recent test data for the example facility that suggest arsenic emissions are lower than the level we had estimated based on the 2011 ICR data that we used in our analysis (see Paul Balserak, 2019, citation in footnote 18). Therefore, we conclude the emissions used in our risk assessment are conservative (upper-end) estimates. This uncertainty also leads us to conclude that the risk results that include nonpoint sources are a qualitative indicator of the potential risk, rather than a true quantitative analysis, that may be higher than the actual risk due to assumptions about the level of emissions from nonpoint sources. These assumptions and uncertainties are explained in the memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, available in the docket to this rule and summarized above.

In addition to supplying new test data, the AISI also conducted their own risk analysis for the same example facility using the same input data (e.g., stack release parameters, fugitive source characteristics, latitude/longitude data for each emissions source, receptor information, etc.), the same model and following the same modeling analysis approach that the EPA used, except that AISI used the newer 2018 test data instead of the 2011 ICR test data that the EPA used. The new test data and AISI risk results are described in the February 2019 AISI document (see Paul Balserak, 2019), which is available in the docket for this action.

We did not have adequate time to complete an extensive review of the new test data,

revise our model input files, and redo our risk analysis before proposal; therefore, we have not yet evaluated the full extent of how the new data will affect the overall results of the example facility risk assessment. Nevertheless, we expect that once we incorporate the new test data into our analyses and rerun our risk model, the risks will be lower than the risk estimates presented in Table 3 above. The results presented by AISI (which are presented in Table 5) indicate the MIR when the UFIP emissions are included could be about half the estimated value in the EPA's risk characterization presented above (*i.e.*, 8-in-1 million compared to the EPA's estimate of 20-in-1 million) and that population risks also could be substantially lower than those presented above in this preamble, with an estimated 500,000 people with risks greater than or equal to 1-in-1 million compared to the estimate of 4,000,000 in the EPA's risk characterization.

**Table 5. Comparison of the Inhalation Risk Estimates for Point and Nonpoint Sources for Example Facility Based on the EPA and AISI Analyses**

<b>Emissions</b>	<b>Inhalation Chronic Cancer Risks</b>					
	<b>MIR (in 1 Million)</b>		<b>Population with Risks &gt; 1-in-1 Million</b>		<b>Population with Risks &gt; 10-in-1 Million</b>	
	<b>based on EPA's Risk Analysis</b>	<b>based on AISI's Risk Analysis</b>	<b>based on EPA's Risk Analysis</b>	<b>based on AISI's Risk Analysis</b>	<b>based on EPA's Risk Analysis</b>	<b>based on AISI's Risk Analysis</b>
Actual	20	8	4,000,000	500,000	9,000	0
Allowables	50	20	4,000,000	NA	90,000	NA

NA = Not available.

Despite uncertainties in the individual nonpoint emission estimates and the range of estimated potential risks reflected in Table 5, monitor data near the example facility indicate that both the EPA and AISI analyses better predict levels of metal HAP (e.g., arsenic and lead) when nonpoint emissions are included. The comparisons of modeled results to ambient monitoring data are described in the EPA's technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron*

*and Steel Manufacturing Facility for Input to the RTR Risk Assessment*, and in the February 2019 AISI risk assessment document,<sup>18</sup> both available in the docket for this proposed rule.

In summary, comparing the EPA's risk model results for UFIP emissions plus point sources to the risk model results for point sources alone for the example facility, the MIR based on actual emissions from only point sources was approximately an order of magnitude lower than the MIR obtained when UFIP emissions were included (about 2-in-1 million compared to about 20-in-1 million). The AISI analysis indicates the MIR based on actual emissions from only point sources also was approximately an order of magnitude lower than the MIR obtained when UFIP emissions were included (about 0.7-in-1 million compared to about 8-in-1 million). A similar relationship is seen for noncancer HI in the EPA's analysis, with 0.03 HI for point sources only as compared to 0.3 HI for point sources plus UFIP emissions. As shown in Tables 3 and 5 of this preamble, population risks also increased significantly when including UFIP emissions with actual point source emissions. For both actual and allowable emission scenarios, the increase in estimated risk when including UFIP emissions was primarily a result of the fugitive HAP metal emissions from BF and BOPF operations. However, as described above, there are uncertainties in the UFIP emissions estimates. Further details on the EPA's risk analysis for the UFIP and other emissions can be found in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

It is important to note that we did not estimate the nonpoint emissions for any facilities other than the example facility in the source category. Therefore, we did not estimate the risks due to nonpoint emissions from those facilities. Because the fugitive emissions from UFIP sources were estimated from production-based emission factors, we made a reasonable



assumption that the facility that produces the most product would be estimated to have the highest fugitive emissions; hence, the selection of the example facility to run the risk model for UFIP emissions because it has the highest production rate in the source category. Additionally, actual nonpoint emissions could be affected to some unknown extent by the quality of equipment and operational practices at each facility.

Nevertheless, by evaluating the risk results from the example facility (for both nonpoint and point sources) along with the risk results for the point sources for all 11 facilities, it appears that the inclusion of nonpoint sources for risk assessment at all other facilities potentially could result in an MIR slightly greater than 70-in-1 million based on allowable emissions, but less than 90-in-1 million. We derived this upper bound worst-case potential risk by taking the MIR for another facility, which had the highest MIR based on point source allowable emissions among all 11 facilities (*i.e.*, MIR of 70-in-1 million from Table 2), and assumed that the risks due to nonpoint sources at this facility would be less than the 20-in-1 million MIR we estimated for the example facility, because the other facility has much lower production rate compared to the example facility. Thus, we conclude that the estimated upper end MIR based on allowable emissions for the source category could be slightly more than 70-in-1 million but less than 90-in-1 million. We are asking for comments on the potential risk from UFIP sources, as described above, and the impact that the potential additional risk could have on the risk for the source category and overall acceptability of the risk for the source category.

#### 4. Multipathway Risk Screening Results

Potential multipathway health risks under a fisher and gardener scenario were evaluated using a three-tier screening assessment of the PB-HAP emitted by point sources at facilities in this source category. All 11 facilities have reported emissions of carcinogenic PB-HAP

(dioxins/furans, arsenic, and POM) and non-carcinogenic PB-HAP (cadmium and mercury) that exceed the Tier 1 SV of 1 for the fisher/farmer scenario. For facilities that exceeded a Tier 1 multipathway SV of 1, we used additional facility-specific information to perform an assessment through Tiers 2 and 3 and a site-specific analysis, as necessary, to determine the maximum chronic cancer and noncancer multipathway health risks for the source category. For cancer, the highest Tier 3 SV was 200 (arsenic and dioxins/furans), and there were seven facilities with Tier 3 SV greater than 1. For noncancer, the highest Tier 3 SV was 2 (mercury and cadmium), and there was one facility with Tier 3 SV greater than 1.

An exceedance of a SV in any of the tiers cannot be equated with a risk value or an HQ (or HI). Rather, it represents a high-end estimate of what the risk or hazard may be. For example, a SV of 2 for a non-carcinogen can be interpreted to mean that we are confident that the HQ would be lower than 2. Similarly, a SV of 200 for a carcinogen means that we are confident that the risk is lower than 200-in-1 million. Our confidence comes from the conservative, or health-protective, assumptions encompassed in the screening tiers: we choose inputs from the upper end of the range of possible values for the influential parameters used in the screening tiers; and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure.

To further evaluate the potential multipathway risks, we conducted a site-specific analysis of three facilities that are located in close proximity to each other: ArcelorMittal-Indiana Harbor facility, U.S. Steel Gary Works, and ArcelorMittal-Burns Harbor. All three facilities also have sinter plants that emit dioxins/furans and are close to water bodies. These candidate sites also were selected because of their exceedances of the cancer SV, where arsenic and dioxins/furans under the fisher and gardener scenarios had the highest exceedances for the source

category, and because of their exceedances of the tiered noncancer SV, where mercury and cadmium under the fisher scenario had the highest exceedances for the source category. We expect that the exposures we assessed are among the highest that might be encountered in this source category, based on combination of the magnitude of HAP emissions and the density of the population in the regions surrounding the facilities.

The site-specific analysis for the fisher scenario resulted in an estimated maximum excess individual cancer risk of about 40-in-1 million (due to dioxin/furan emissions from sinter plants) and the gardener (rural) scenario resulted in an estimated maximum excess individual cancer risk of about 20-in-1 million for arsenic and dioxins/furans. The site-specific multipathway assessment for the fisher scenario produced a noncancer HQ of 0.1 for cadmium and 0.5 for mercury. The protocol for developing the refined site-specific multipathway assessment, input data, assumptions, and detailed results are presented in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

In evaluating the potential for multipathway effects from emissions of lead, we compared modeled annual lead concentrations to the primary NAAQS for lead ( $0.15 \mu\text{g}/\text{m}^3$ ). The highest annual lead concentration of  $0.004 \mu\text{g}/\text{m}^3$  is well below the NAAQS for lead, indicating a low potential for multipathway impacts of concern due to lead. Multipathway risks were not explicitly calculated with the additional estimated actual UFIP. However, based upon the increase in certain metal emissions (arsenic and mercury), we could expect these risks to increase as well, although not linearly with emission changes.

## 5. Environmental Risk Screening Results

As described in section III.C of this document, we conducted an environmental risk

screening assessment for the Integrated Iron and Steel Manufacturing source category for the following pollutants: arsenic, cadmium, dioxins/furans, HCl, lead, mercury (methyl mercury and mercuric chloride), and POM.

In the Tier 1 screening analysis for PB-HAP (other than lead, which was evaluated differently), arsenic emissions at two facilities had exceedances for the surface soil threshold level (plant communities) and the surface soil No Observed Adverse Effect Level (NOAEL) (avian ground insectivores) by a maximum SV of 4. Cadmium emissions at nine facilities had Tier 1 exceedances for the surface soil NOAEL (mammalian insectivores and avian ground insectivores), the fish NOAEL (avian piscivores and mammalian piscivores), the sediment community no-effect level, and the water-column community threshold level by a maximum SV of 50. Dioxins/furans emissions at three facilities had Tier 1 exceedances for the surface soil NOAEL (mammalian insectivores) by a maximum SV of 600. Divalent mercury emissions at 11 facilities had Tier 1 exceedances for the surface soil threshold level (invertebrate and plant communities) and the sediment threshold level by a maximum SV of 60. Divalent mercury emissions, and subsequent methylation and formation of methyl mercury in biota, at the 11 facilities resulted in Tier 1 exceedances for the surface soil NOAEL (avian ground insectivores and mammalian insectivores) and the fish NOAEL (avian piscivores) by a maximum SV of 90. POM emissions at two facilities had Tier 1 exceedances for the sediment no-effect level by a maximum SV of 5.

A Tier 2 screening assessment was performed for arsenic, cadmium, dioxins/furans, divalent mercury, methyl mercury, and POM emissions. Arsenic, divalent mercury, and POM emissions had no Tier 2 exceedances for any ecological benchmark. Emissions from five facilities impact one lake (Chubb Lake), which caused an exceedance of the Tier 2 screen for the

fish NOAEL (avian piscivores) by a maximum SV of 2 for both cadmium and divalent mercury. Dioxins/furans emissions from one facility exceeded the Tier 2 screen for the surface soil, NOAEL (mammalian insectivores) by a maximum SV of 4. This exceedance is based on the area-weighted average dioxins/furans concentration in the soils around this facility, for which 100 percent of the modeled soil area exceeded the Tier 2 screen. None of the other dioxin benchmarks evaluated were exceeded in the Tier 2 screen, including the NOAEL for common merganser and the NOAEL for mink.

A site-specific assessment, incorporating plume rise and hour-by-hour concentrations, was conducted for the dioxins/furans emissions from this facility. In the site-specific assessment, the area-weighted average dioxins/furans concentration in the soils around the facility did not exceed any benchmark. However, approximately 39 percent of the modeled soil area did exceed the NOAEL benchmark for mammalian insectivores (shrew) (exceedance areas had an area-weighted average exceedance of 3). However, none of the other 12 ecological benchmarks evaluated for dioxins/furans showed any exceedances. This includes the following other NOAEL benchmarks: NOAEL for fish-eating birds (common merganser), NOAEL for fish-eating mammals (mink), and a lake benthic sediment no-effect level. Since the area-weighted-average dioxins/furans soil concentration did not exceed any benchmark and only one NOAEL of the three NOAELs evaluated showed any exceedance of a portion of the modeled area, we do not expect a significant and widespread adverse effect as a result of the dioxins/furans emissions from this source category. The analysis estimated no exceedances of the secondary lead NAAQS. For HCl, the average modeled concentration around each facility (*i.e.*, the average concentration of all off-site data points in the modeling domain) did not exceed any ecological benchmark. In addition, each individual modeled concentration of HCl (*i.e.*, each off-site data

point in the modeling domain) was below the ecological benchmarks for all facilities.

Based on the results of the environmental risk screening analysis, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

## 6. Facility-Wide Risk Results

Based on facility-wide emissions of point sources and noncategory sources, the estimated cancer MIR is 80-in-1 million, mainly driven by emissions from coke ovens, which are from noncategory sources, *i.e.*, not part of the Integrated Iron and Steel Manufacturing source category. The total estimated cancer incidence from the facility-wide analysis is 0.1 excess cancer cases per year, or one excess case every 9 years. Approximately 1,800,000 people were estimated to have cancer risks at or above 1-in-1 million, and 67,000 of these people were estimated to have cancer risks at or above 10-in-1 million, from exposure to HAP emitted from both sources that are part of the Integrated Iron and Steel Manufacturing source category and sources that are not part of the source category at the 11 facilities in the source category. The maximum facility-wide TOSHI for the source category is estimated to be 0.8 (for the neurological HI) driven by emissions of manganese compounds from sources that are not part of the source category. Emissions of noncategory sources are described in the technical memorandum titled *Integrated Iron and Steel Data Summary for Risk and Technology Review*, available in the docket to this rule, that includes a description of all the emissions and process data used in this proposed rule along with any assumptions that were made.

## 7. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups of the populations living within 5 km and within 50 km of the

facilities. In the analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the Integrated Iron and Steel Manufacturing source category point sources across different demographic groups within the populations living near facilities.<sup>23</sup> Note that we did not do this type of analysis for the UFIP emissions because we only estimated UFIP emissions for one facility.

The results of the demographic analysis are summarized in Table 6 below. These results, for various demographic groups, are based on the estimated risk from actual emissions from point sources for the population living within 50 km of the facilities.

**Table 6. Integrated Iron and Steel Manufacturing Demographic Risk Analysis Results**

<b>Item</b>	<b>Nationwide</b>	<b>Population with Cancer Risk at or At or Above 1-in-1 Million Due to Integrated Iron and Steel Manufacturing</b>	<b>Population with Chronic HI At or Above 1 Due to Integrated Iron and Steel Manufacturing</b>
Total Population	317,746,049	64,158	0
White and Minority by Percent			
White	62%	63%	0%
Minority	38%	37%	0%
Minority by Percent			
African American	12%	29%	0%
Native American	0.8%	0.1%	0%
Hispanic or Latino (includes white and nonwhite)	18%	4%	0%
Other and Multiracial	7%	4%	0%
Income by Percent			
Below Poverty Level	14%	23%	0%
Above Poverty Level	86%	77%	0%
Education by Percent			

<sup>23</sup> Demographic groups included in the analysis are: White, African American, Native American, other races and multiracial, Hispanic or Latino, children 17 years of age and under, adults 18 to 64 years of age, adults 65 years of age and over, adults without a high school diploma, people living below the poverty level, people living two times the poverty level, and linguistically isolated people.

Over 25 and without High School Diploma	14%	12%	0%
Over 25 and with a High School Diploma	86%	88%	0%
	Linguistically Isolated by Percent		
Linguistically Isolated	6%	0.6%	0%

The results of the Integrated Iron and Steel Manufacturing source category demographic analysis indicate that point source emissions from the source category expose approximately 64,000 people to a cancer risk at or above 1-in-1 million and zero people to a chronic noncancer HI greater than or equal to 1. The percentages of the at-risk population in each demographic group (except for African American and Below Poverty Level) are similar to or lower than their respective nationwide percentages. The African American population exposed to a cancer risk at or above 1-in-1 million due to Integrated Iron and Steel Manufacturing emissions is more than three times the national average. Likewise, populations living “Below Poverty Level” exposed to cancer risk at or above 1-in-1 million is nearly twice the national average.

The methodology and the results of the demographic analysis are presented in a technical report, *Risk and Technology Review – Analysis of Demographic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities*, available in the docket for this action.

*B. What are our proposed decisions regarding risk acceptability, ample margin of safety, and adverse environmental effect?*

In this section, we discuss the results of our analysis of risk from point sources and our analysis of risk from point and nonpoint sources at the example facility. We also discuss our proposed finding of acceptability and our ample margin of safety analysis.

#### 1. Risk Acceptability

As noted in section II.A of this preamble, the EPA sets standards under CAA section



112(f)(2) using “a two-step standard-setting approach, with an analytical first step to determine an ‘acceptable risk’ that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand.” (54 FR 38045, September 14, 1989). In this proposal, the EPA estimated risks based on actual and allowable emissions from Integrated Iron and Steel Manufacturing sources, and we considered these in determining acceptability.

The estimated inhalation cancer risk to the individual most exposed to actual emissions from the source category based on modeling point source emissions for all 11 facilities is 10-in-1 million. The estimated incidence of cancer due to inhalation exposures due to the point sources for the source category is 0.03 excess cancer cases per year, or one excess case every 33 years. We estimate that approximately 64,000 people face an increased cancer risk greater than or equal to 1-in-1 million due to inhalation exposure to HAP emissions from the point sources for this source category. The Agency estimates that the maximum chronic noncancer TOSHI from inhalation exposure due to point sources (only) for this source category is 0.1. The screening assessment of worst-case acute inhalation impacts due to point sources (only) indicates a maximum HQ of 0.3 (due to arsenic) based on the REL. With regard to multipathway human health risks, we estimate the cancer risk for the highest exposed individual is 40-in-1 million (due to dioxins/furans emissions from sinter plants) and the maximum chronic HI is less than 1 for all the PB HAP. Although we did not assess multipathway risk for the example facility, the highest exposed individual for dioxins/furans in the point source modeling was not due to the example facility and none of the nonpoint sources are expected to include dioxin/furans emissions.

Based on allowable emissions, the estimated inhalation cancer risk to the individual most

exposed from point sources for the source category would be 70-in-1 million and the estimated incidence of cancer due to inhalation exposures to these allowable emissions would be 0.3 excess cancer cases per year, or one excess case every 3 years. An estimated 6 million people would face an increased cancer risk greater than or equal to 1-in-1 million due to inhalation exposure to allowable HAP emissions from this source category. The maximum chronic noncancer TOSHI from inhalation exposure would be 0.9 based on allowable emissions.

With regard to the estimated risks due to actual emissions from nonpoint and point sources for the example facility, the estimated inhalation cancer risk to the individual most exposed to actual emissions for the example facility when nonpoint sources were included in the EPA's risk analysis increased from 2-in-1 million to 20-in-1 million. The population exposed to risks greater than or equal to 1-in-1 million increased from 3,000 to 4,000,000,<sup>24</sup> and the population exposed to risks greater than or equal to 10-in-1 million increased from 0 to 9,000 due to increase in the estimated HAP emissions from 3 tpy to 53 tpy. The maximum chronic noncancer TOSHI from inhalation exposures remained at less than 1, but the acute HQ increased from 0.3 to 3 based on the REL (for arsenic). Based on allowable emissions, the estimated inhalation cancer risk to the individual most exposed increased from 30-in-1 million to 50-in-1 million with nonpoint sources. Thus, if nonpoint emissions were quantified for the entire source category, the source category risks presented in this section (based on point sources only) including the number of individuals with cancer risk exceeding 1-in-1 million would be expected to increase for each facility. Although it is problematic to estimate from the results presented

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<sup>24</sup> The large affected population reflects the Greater Chicago area, which is in close proximity to the example facility. Metal HAP emissions at the example facility increased by a factor of 15 when UFIP emissions estimates were added to point source emissions; this increase is reflected in the estimated risk impacts for the example facility.

here what the increase in risk might be for each facility in the entire industry without quantifying nonpoint emissions for each facility, based upon results from the example facility, we conclude that it is likely that the cancer and noncancer risks at other facilities would be less than 90-in-1 million and the maximum chronic noncancer HI would be less than 1.

In determining whether risks are acceptable for this source category, the EPA considered all available health information and risk estimation uncertainty as described above. The risk results indicate that the inhalation cancer risks to the individual most exposed may be more than 70-in-1-million but less than 90-in-1 million, as a worst case, considering the highest allowable risk due to point sources among the industry facilities plus the conservative estimate of risk from UFIP, which is less than the presumptive limit of acceptability of 100-in-1 million,<sup>25</sup> and also considering the uncertainties in the example facility analysis, as described above in section III.C.8.a. There are no facilities with an estimated maximum chronic noncancer HI greater than or equal to 1 from point sources. The maximum acute HQ for all pollutants is less than 1 when we only consider point source emissions, and up to 3 based on the REL for arsenic when including exposures to estimated emissions from nonpoint emissions at the example facility. For the acute screening analyses, to better characterize the potential health risks associated with estimated worst-case acute exposures to HAP, the EPA examines a wider range of available acute health metrics than is done for chronic risk assessments. This is in acknowledgement that there are generally more data gaps and uncertainties in acute reference values than there are in chronic reference values. By definition, the acute REL represents a health-protective level of exposure, with effects not anticipated below those levels, even for repeated exposures; however,

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<sup>25</sup> See Benzene NESHAP (54 FR 38044, September 14, 1989) discussion above in section II.A of this proposal.

the level of exposure that would cause health effects is not specifically known. As the exposure concentration increases above the acute REL, the potential for effects increases. In addition, the acute screening assessment includes the conservative (health protective) assumptions that every process releases its peak hourly emissions at the same hour, that the near worst-case dispersion conditions occur at that same hour, and that an individual is present at the location of maximum concentration for that hour. Further, the HQ value was not refined to an off-site location, which, in many cases, may be significantly lower than that estimated at an on-site receptor. Thus, because of the conservative nature of the acute inhalation screening assessment as well as the uncertainty in the nonpoint emission estimates, there is low probability that the maximum HQ of 3 is associated with adverse health effects in the industry as a whole.

Considering all of the health risk information and factors discussed above, including the uncertainties regarding our estimates of nonpoint emissions discussed in section III of this preamble, the EPA proposes that the risks are acceptable. The estimated cancer risks are below the presumptive limit of acceptability and the noncancer results indicate there is minimal likelihood of adverse noncancer health effects due to HAP emissions from this source category. We request comments on this proposed determination of acceptability.

## 2. Ample Margin of Safety Analysis and Potential Controls

We next considered whether the existing MACT standards provide an ample margin of safety to protect public health. In the ample margin of safety analysis, we evaluated the cost and feasibility of available control technologies and other measures (such as work practices) that could be applied to the source category to further reduce the risks due to emissions of HAP. For purposes of the ample margin of safety analysis, after we evaluated these controls and measures and identified possible regulatory options based on this evaluation, we estimated the reductions

in risks that would occur through adoption of these options for both actual and allowable emissions.

*a. Point Sources*

The point sources at Integrated Iron and Steel Manufacturing facilities are already well controlled with baghouses and scrubbers. However, as part of the ample margin of safety assessment, we evaluated the following additional technologies for controlling point source emissions to further reduce risk from these sources, taking into consideration costs, energy, safety and other relevant factors. First, we evaluated the installation of a wet electrostatic precipitator (ESP) on the exhaust of the current air pollution control devices for the BF casthouse primary units to reduce chromium VI and arsenic emissions, respectively. We also evaluated the installation of activated carbon injection (ACI) systems onto current control devices for the sinter plant windbox to reduce emissions of dioxins/furans. Table 7 below shows the estimated costs, and emission and risk reductions with installation of these controls.

**Table 7. Results of Ample Margin of Safety Analysis for Point Source Risk**

Item	By HAP and Unit		
	Chromium VI (Actuals)	Arsenic (Allowable)	Dioxins/furans (Actuals, as TEQ)
	BF	BOPF	Sinter Plant
<b>Industry Costs</b>			
Capital	\$476,538,529	\$793,465,144	\$781,286
Annual	\$62,065,611	\$103,342,953	\$1,849,781
<b>Emissions Removed</b>			
	3.29E-02 tpy	2.25 tpy	1.97E-02 lb/yr
<b>Cost Effectiveness [Annual Costs / Emissions Removed]</b>			
Individual HAP	\$943,217/lb	\$22,918/lb	\$94,006,541/lb
	\$1.9 trillion/ton	\$46 million/ton	\$188 trillion/ton
<b>Risk MIR</b>			
Before Control	10	70	40
After Control	<1	4	<1

Although the MIR could be reduced from 10-in-1 million, 70-in-1 million, and 40-in-1 million for BF chromium actual emissions, BOPF arsenic allowable emissions, and sinter plant

dioxins/furans actual emissions as toxic equivalents (TEQ),<sup>26</sup> respectively, we are not proposing any of these control scenarios because of the relatively high capital costs and annualized costs. These controls are not considered cost effective, where cost effectiveness estimates are determined to be \$1.9 trillion/ton (\$940,000/pound(lb)), \$46 million/ton (\$23,000/lb), and \$188 trillion/ton (\$94 million/lb) for BF chromium, BOPF arsenic, and sinter plant dioxins/furans, respectively. For details of this analysis, see the technical document titled *Ample Margin of Safety for Point Sources in the H&S Industry*, available in the docket to this rule, that describes the costs of additional control of BF chromium, BOPF arsenic, and sinter plant dioxin/furans.

*b. Nonpoint Sources*

In addition to the control options assessed for point sources, we identified work practices that could achieve HAP reductions from the seven nonpoint sources, such as more frequent measurements (e.g., opacity, internal furnace conditions), increased maintenance, applying covers on equipment, developing operating plans to minimize emissions, optimizing positioning of ladles with respect to hood faces, and earlier repair of equipment. We evaluated work practices for these seven nonpoint sources, because the nature of these fugitive and intermittent emissions are such that they are not emitted through a conveyance designed and constructed to capture these pollutants. The work practices are described in more detail below. We request comments on these work practices and related information included below.

As shown in Table 4 (above), the two nonpoint sources that present the highest contribution to the MIR are the BF casthouse and BOPF shop, which are currently regulated by

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<sup>26</sup> From the 2005 World Health Organization (WHO) toxicity equivalence factors. See *Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2,3,7,8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds*. Publication No. EPA/100/R-10/005. U.S. EPA, Washington, DC. 2010.

opacity limits in the rule. These two nonpoint sources account for an estimated 71 percent of the 20-in-1-million MIR at the example facility. The other five nonpoint sources (BF slag handling and storage, BF bell leaks, BF (bleeder valve) planned openings, BF (bleeder valve) unplanned openings, and BF iron beaching), when combined, account for about 22 percent of the 20-in-1-million MIR at the example facility.

We evaluated two main options to reduce emissions and risks under the ample margin of safety analysis under CAA section 112 (f)(2). Although we are not proposing standards based on either option, we are requesting comments on the options. We ask for comments on the costs and effectiveness of the work practices to reduce emissions; whether these work practices should be viewed as viable methods to reduce emissions and, therefore, risk from these nonpoint sources; and whether further control of fugitive and/or intermittent emissions from these nonpoint sources by implementation of the work practices, pursuant to CAA section 112(h), should be required under the ample margin of safety analysis for this source category.

Option 1 would be to establish work practice standards for two of the nonpoint sources (BF casthouse fugitives and BOPF shop fugitives), which pose the greatest contribution to the MIR. Potential work practices for each of these two fugitive sources include the following:

*Potential work practices for the BF casthouse fugitives:*

- Keep runner covers in place at all times except when runner or cover is being repaired or removed for inspection purposes (2-hour repair or observation limit);
- Develop and operate according to a “BF Casthouse Operating Plan” to minimize fugitive emissions and detect openings and leaks;
- Measure opacity frequently during the tapping operation (*e.g.*, during four taps per month) with all openings closed (except for roof monitor) using EPA Method Alt-082 (camera) or EPA Method 9; and
- Keep doors and other openings, except roof monitors, closed during all transfer operations to extent feasible and safe.

*Potential work practices for the BOPF shop fugitives:*

- Develop and operate according to a “BOPF Shop Operating Plan” to minimize fugitive emissions and detect openings and leaks;

- BOPF Shop Operating Plan may include:
  - List of all events that generate visible emissions (VE), including slopping, and steps company will take to reduce incidence rate;
  - Minimize hot iron pour/charge rate (minutes);
  - Schedule of regular inspections of BOPF shop structure for openings and leaks to the atmosphere;
  - Optimize positioning of hot metal ladles with respect to hood face and furnace mouth;
  - Optimize furnace tilt angle during charging;
  - Keep all openings, except roof monitors, closed, especially during transfer, to extent feasible and safe;
  - Use higher draft velocities to capture more fugitives at a given distance from hood, if possible; and
  - Monitor opacity periodically (*e.g.*, once per month) from all openings with EPA Method Alt-082 (camera) or with EPA Method 9.

We estimate these work practices would achieve a range of 50- to 90-percent reduction in fugitive emissions from these sources, based on EPA judgement as to the potential effectiveness of the work practices. With regard to reductions in risks, we developed a model input file to reflect the estimated emissions reductions that would be achieved under the Option 1 scenario and performed a post-control modeling scenario to estimate risk reductions. For the post-control scenario, we assumed the work practices would achieve 70-percent reduction in emissions (the midpoint between 50 and 90 percent). Based on this modeling assessment, we estimate Option 1 would reduce the MIR from 20-in-1 million to about 10-in-1 million for the example facility, the estimated population with risks greater than or equal to 1-in-1 million would decrease from 4,000,000 to 1,500,000, and the estimated population with risks greater than or equal to 10-in-1 million would decrease from 9,000 to 800. In addition, the maximum acute HQ would decrease from 3 to 2. This option also would achieve reductions in PM at or below 2.5 micrometers (PM<sub>2.5</sub>). We request comments on these estimated reductions.

We estimate the total capital costs of Option 1 for the source category would be about \$1.4 million and annualized costs would be about \$1.7 million per year, with a cost effectiveness value of approximately \$10,000/ton HAP corresponding to an estimate of 173 tons of HAP



reductions. This estimate is based on cost estimates for individual emission units that were projected to the entire industry based on the number of units of each type at each facility. For details on these cost estimates, see the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*, available in the docket to this proposed rule, that describes the costs estimated for implementation of work practices to control emissions from nonpoint sources, the estimated emission reductions of HAP (and PM) at nonpoint sources with implementation of the work practices, and the cost effectiveness of the work practices in terms of estimated cost per ton of HAP (and PM) removed. We request comments on these cost estimates.

Option 2 would be to establish work practice standards for all seven of the nonpoint sources described above. Potential work practices for two of the seven sources, the BF casthouse and BOPF shop under Option 2, would be the same as described above for Option 1. Potential work practices for the other five out of seven nonpoint sources in Option 2 include the following:

*BF slag handling and storage operations*

- Limit opacity to 10 percent, as 3-minute average; and
- Use of fog spray systems over pit area, applying spray after each dump of slag and during all digging activities to extent feasible and safe.

*BF bell leaks (defined as opacity >10 percent for > 45 seconds total)*

- Limit opacity to 10 percent, as average of three consecutive observations made 15 seconds to 5 minutes apart at any location at the top of the furnace (*i.e.*, small bell or inter-bell relief valve);
- Observe BF top for VE monthly to identify beginning of leaks; measure opacity if VE positive;
- Maintain metal seats of large and small bells to minimize wear on seals; and
- Repair/replace seals within 4 months if fail to meet limit.

*BF planned openings*

- Limit opacity to 10 percent, as 3-minute average;
- Develop and operate according to a “Dirty Gas Bleeder Valve Opening Plan” to meet opacity limit;
- Idling preparation activities:

- Tap as much liquid (iron and slag) out of furnace as possible;
- Remove fuel and/or stop fuel injection into furnace; and
- Establish and use lowest bottom pressure possible, according to EPA-specified procedures.

*BF unplanned openings (“slips”)*

- Limit four slips/month;
  - If exceed this limit (5<sup>th</sup> slip, 1<sup>st</sup> exceedance), develop and operate according to a “Slip Avoidance Plan”;
- Perform root cause analysis for 2nd and 3rd exceedance of monthly limit (6<sup>th</sup> and 7<sup>th</sup> slip); modify plan as appropriate and safe to decrease occurrence of slips; and
- At 4th exceedance of monthly limit (8<sup>th</sup> slip), install additional devices to continuously measure/monitor material levels in furnace (*i.e.*, stockline), at a minimum of three locations, with alarms to inform operators of static (*i.e.*, not moving) stockline conditions which increase the likelihood of slips. Also install/use instruments on furnace to monitor temperature and pressure to help determine when a slip has occurred. This information can help operators identify potential problems and, therefore, adjust controls/actions to avoid unplanned slips. These installations and monitoring would be required within 3 months of 8<sup>th</sup> slip.

*BF iron beaching*

- Limit opacity to 20 percent, as 6-minute averages continuously measured during entire beaching event;
- Minimize height, slope, and speed of beaching; and
- Use carbon dioxide shielding during beaching event; and/or use full or partial (hoods) enclosures around beached iron.

**Table 8. Estimated Costs, Reductions, and Cost-effectiveness of Control of Nonpoint Sources via Work Practices in the Integrated Iron and Steel Manufacturing Industry**

<b>Nonpoint Source</b>	<b>Capital Costs</b>	<b>Annual Costs</b>	<b>HAP Reductions tpy<sup>a</sup></b>	<b>Cost Effectiveness \$/ton HAP Removed</b>
BF Unplanned Openings	\$1,200,000	\$197,747	3.1	\$63,962
BF Planned Openings	--	\$59,205	2.0	\$29,605
BF Bell Leaks	\$5,000,000	\$555,771	4.3	\$130,680
BF Casthouse Fugitives	\$960,000	\$1,183,981	36	\$32,821
BOPF Shop Fugitives	\$480,000	\$500,541	137	\$3,665
BF Iron Beaching	--	\$99,494	0.042	\$2,392,593
Slag Handling & Storage	\$1,100,000	\$451,602	2.9	\$157,167
<b>Overall Total</b>	<b>\$8,740,000</b>	<b>\$3,048,342</b>	<b>185</b>	<b>\$16,478</b>

We estimate the total capital costs of Option 2 for the source category would be about \$8.7 million and annualized costs would be about \$3 million per year, for a cost effectiveness of

\$16,000/ton HAP corresponding to an estimate of 185 tons of HAP reductions. The estimated costs (capital and annualized), reductions, and cost effectiveness for the work practices for the seven individual UFIP sources are shown above in Table 8 and discussed in detail in the technical memorandum titled *Ample Margin of Safety Analysis for Nonpoint Sources in the II&S Industry*, available in the docket for this rule. We assume these work practices would achieve a range of 50- to 90-percent reduction in fugitive emissions.

We request comments on these estimated reductions and cost estimates. There may be energy savings from reducing leaks of BF gas from bells, which is one of the work practices described above. We solicit comment on the potential energy and related cost savings for Integrated Iron and Steel Manufacturing facilities with implementation of this work practice.

The cost methodology and cost estimates for control of emissions from the seven UFIP sources are described in detail in the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*, available in the docket to this rule. We request comments on these cost estimates.

With regard to reductions in risks, we developed a risk model input file to reflect the estimated emissions reductions that would be achieved under Option 2 and performed a post-control analysis to estimate potential risk reductions. For the post-control scenario, we assumed the work practices would achieve 70-percent reduction in emissions (the midpoint between 50 and 90 percent). Based on this post-control modeling assessment, we estimate Option 2 (*i.e.*, work practices for all seven nonpoint sources) would reduce the MIR from 20-in-1 million to about 9-in-1 million for example facility, the estimated population with risks greater than or equal to 1-in-1 million would decrease from 4,000,000 to 800,000, and the estimated population with risks greater than or equal to 10-in-1 million would decrease from 9,000 to 0. Also, the

maximum acute HQ would decrease from 3 to 0.9. This option would also achieve reductions in PM<sub>2.5</sub>.

We note that there are uncertainties in our assessment and are requesting comments on this and any other issues that impact this assessment. First, as described above, there are uncertainties in the baseline UFIP emissions. Second, there are uncertainties in the estimated reductions that would be achieved by the work practices because we made assumptions regarding how much reduction would be achieved with the work practices. Third, there are uncertainties in the cost estimates because we made various assumptions about number of labor hours, equipment needed, and other known factors. There may be cost factors that are unknown to us at this time; we request comment on any additional cost impacts.

*c. Ample Margin of Safety Decisions*

Based on consideration of all the information described above, including the risk results, costs, and uncertainties, we are proposing that no additional standards are necessary under section 112(f) of the CAA and that the current NESHAP provides an ample margin of safety. This decision is based largely on the cost and cost effectiveness of the point source controls and the uncertainties in the nonpoint source assessment in terms of baseline emissions, costs of the work practices, how much risk reduction they could achieve, and uncertainties regarding potential effects of the work practices on the facilities' operations, safety, and economics.

We solicit comment on this proposed decision. We also solicit comments, as well as additional information and data, on the work practices and the two options described above. Specifically, we solicit comment on the emissions estimates, cost estimates, cost savings, estimated emissions reductions, control effectiveness, and any other relevant information regarding the value or appropriateness of incorporating work practices for UFIP sources into the

NESHAP. We solicit comment on whether Option 1 or Option 2 should be required for these facilities, or some other combination of work practices. We also solicit comments, data, and information on the specific seven work practices, any issues they may present (*e.g.*, safety, costs, disruptions of operations, *etc.*) and whether or not they should be included in the NESHAP and why.

We also solicit comment on whether only opacity limits (similar to opacity limits currently in the NESHAP for the BF casthouse and BOPF shop fugitives) should be established for the other five UFIP (BF slag handling and storage, BF bell leaks, BF planned openings, BF unplanned openings, and BF iron beaching) without requiring any of the work practices described above. For example, we are seeking comments on whether it would be appropriate to establish opacity limits of 20 percent for all five of these UFIP or a subset of these five UFIP sources. We also seek comments on whether it would be appropriate to establish opacity limits of 20 percent for BF bell leaks and BF bleeder valves (BF planned and unplanned openings) and 10 percent for BF iron beaching and BF slag handling and storage that would be consistent with requirements in some of the state implementation plans (SIP) for criteria pollutants that apply to some of the existing facilities. These opacity standards would ensure that these nonpoint sources in all states do not have opacity above the SIP levels. Details of the SIP requirements can be found in the technical memorandum titled *Ample Margin of Safety for Nonpoint Sources in the H&S Industry*, located in the docket for this rule and described above.

### 3. Adverse Environmental Effects

Considering the results of our environmental risk screening, we do not expect an adverse environmental effect as a result of HAP emissions from this source category, and we are proposing that it is not necessary to set a more stringent standard to prevent an adverse

environmental effect, taking into consideration costs, energy, safety, and other relevant factors.

*C. What are the results and proposed decisions based on our technology review?*

1. What are the results of our technology review for point sources?

The emissions from point sources at Integrated Iron and Steel Manufacturing facilities are controlled by baghouses, ESPs, scrubbers, and fume/flame suppressants. For point sources, in addition to the controls considered for point sources under the ample margin of safety analysis above (in section IV.B), under the technology review, we evaluated the cost effectiveness of upgrading fume/flame suppressants used for control of fugitive PM and HAP metal emissions from BF to control of emissions with baghouses, and process modifications to further reduce dioxin/furan emissions from sinter plants. The technology reviews of these two emissions sources are discussed below and in detail in the technical memorandum titled *Technology Review for the Integrated Iron and Steel NESHAP*, available in the docket to this rule.

*a. Upgrading Fume/flame Suppressants at Blast Furnaces to Baghouses*

Most emissions from the BF casthouse occur from tapping the molten iron (product) and slag (waste) to remove these materials from the furnace. Emissions occur at the taphole on the BF, from open troughs (runners) that transport the iron and slag, from open ladles that receive the molten iron, and open iron transport systems (torpedo cars). These emissions are controlled in the Integrated Iron and Steel Manufacturing industry in one of two fundamentally different ways: fume and flame suppression techniques, or conventional ventilation practices that route exhaust air to control devices such as baghouses. Fume suppression consists of blowing natural gas over the open equipment which retards vaporization and prevents emissions. With flame suppression, the natural gas is ignited with accompanying oxygen consumption that suppresses the formation of metal oxide emissions. In more efficient control practices, local ventilation

practices, such as localized hooding and other area ventilation techniques, are used to collect the emissions from the open BF equipment. Alternatively, the casthouse may be totally enclosed and evacuated to a control device. The use of fume/flame suppressants for control of fugitive BF casthouse emissions is estimated to have 75-percent control, whereas control with baghouses is estimated to have 95-percent control.

There are a total of eight BF with fume/flame suppressants distributed at four facilities among the 21 BF total at 11 Integrated Iron and Steel Manufacturing facilities. Per-unit capital costs for converting from fume/flame suppressant control to baghouses are estimated to be \$18 million with \$2.7 million in annual unit costs, where some facilities have two or three units. Total industry costs are estimated to be \$140 million in capital costs and \$22 million annual costs. The estimated cost effectiveness of upgrading the fume/flame suppressant control to ventilation and baghouses at all eight BF is \$7 million/ton of metal HAP with 3 tons of HAP removed, and \$160,000/ton PM with 120 tons of PM removed. We conclude these controls for PM and metal HAP emissions are not cost effective. Details of this cost estimate and other aspects of upgrading fume/flame suppressants to baghouses can be found in the technical memorandum cited above. We ask for comments and additional information regarding the estimated costs of these conversions, the underlying assumptions of our analysis, and our proposed conclusion that converting from the use of fume suppressant to installation of new baghouses for these sources would not be cost effective.

#### *b. Process Modifications to Control Dioxins at Sinter Plants*

There are three facilities in the Integrated Iron and Steel Manufacturing source category that have sinter plants. The sinter plants are currently regulated by PM and opacity limits on the windbox exhaust stream, sinter cooler, and discharge end of sinter plant. In addition, the sinter

plant windbox is regulated for organic HAP with compliance demonstrated by either meeting a VOC limit or a limit on oil content of the sinter feed. Dioxins/furans are components of the organic HAP but because of the high toxicity of this HAP, often are addressed separately under control scenarios. Therefore, our technology review included exploration of potential control measures that could further reduce dioxin/furans from sinter plants.

We conducted a literature search and reviewed various technical publications (largely from Europe and other countries in the Stockholm Convention<sup>27</sup>) regarding potential control technologies and practices to reduce dioxins from sinter plants and found a number of potential options that could potentially be applied at sinter plants in the U.S.<sup>28,29,30</sup> These options include urea injection to inhibit dioxin formation; partial windbox exhaust gas recirculation; post-exhaust windbox chemical spray (monoethanolamine and triethanolamine dissolved in water and sprayed onto exhaust); and elimination of certain inputs (*e.g.*, no ESP dust). The European Union also included these measures in their 2013 Best Available Technology evaluation.<sup>31</sup> As far as we know, none of these technologies or practices are currently used at sinter plants in the U.S.

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<sup>27</sup> *Stockholm Convention on Persistent Organic Pollutants (Pops), Texts and Annexes*. Revised in 2017. Published by the Secretariat of the Stockholm Convention, Geneva, Switzerland. May 2018. Available at: <http://www.pops.int>.

<sup>28</sup> Ooi, T. C. and L. Lu. *Formation and mitigation of PCDD/Fs in iron ore sintering*. Chemosphere 85 291–299. 2011.

<sup>29</sup> Boscolo, M, E., Padoano, and S. Tommasi. *Identification of possible dioxin emission reduction strategies in preexisting iron ore sinter plants*. Institute of Materials, Minerals and Mining. Published by Maney on behalf of the Institute. Ironmaking and Steelmaking. 15:35:11. The Charlesworth Group, Wakefield, UK. October 19, 2007.

<sup>30</sup> Lanzerstorfer, C. *State of the Art in Air Pollution Control for Sinter Plants*. Chapter 18, in *Ironmaking and Steelmaking Processes*. P. Cavaliere, Ed. Springer International Publishing, Springer Nature, Switzerland AG. 2016.

<sup>31</sup> *Best Available Techniques (BAT) Reference Document for Iron and Steel Production*. Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control). R. Remus, M. A. Aguado-Monsonet. S. Roudier, L. D. Sancho. European Commission, Joint Research Centre, Institute for prospective technological studies. European IPPC Bureau, Seville, Spain. Luxembourg Publications Office of the European Union. doi:10.2791/97469. 2013.



However, based on the literature cited above, we believe some of these technologies or measures may be used to control dioxins/furans in other countries (such as in Europe and other countries complying with the Stockholm Convention<sup>27</sup>). Nevertheless, we have not been able to estimate the costs or effectiveness of these control methods due to lack of cost information in the literature, nor have we been able to estimate the feasibility for U.S. facilities. See the technical memorandum cited above for details on the technology review for dioxin/furans from sinter plants. We ask for comments on these potential process modifications and feasibility for control of dioxin/furans from sinter plants at U.S. Integrated Iron and Steel Manufacturing facilities.

*c. Technology Review of Point Sources*

Considering all the information described above in our technology reviews, we have not identified any developments in practices, processes, or technologies that warrant revision of the NESHAP for point sources. Therefore, we are not proposing any changes to the NESHAP pursuant to section 112(d)(6) of the CAA for point sources.

Other than the technologies and measures described above, we have not identified any additional potential developments in practices, processes, or technologies available to control emissions from point sources. Based on consideration of all the information described above, we are proposing that no additional standards are necessary under section 112(d)(6) of the CAA. We solicit comments on this proposed decision.

2. What are the results of our technology review for nonpoint sources?

Fugitive emissions generated within the BF casthouse and BOPF shop from activities such as charging, tapping, and door openings for maintenance and process monitoring are partially controlled by secondary capture systems that route emissions captured by hoods and other collection systems to control devices that are either the primary control system or stand-

alone secondary control devices. Because capture of fugitive emissions within the BF casthouse and BOPF shop is not always done or complete (*i.e.*, not 100 percent) some uncaptured fugitive emissions escape through roof vents and other openings. To restrict the amount of fugitive emissions that escape the BF casthouse and BOPF shop, the NESHAP set opacity limits of 20 percent (3-minute average) for all openings at existing units to be measured a minimum of once every 5 years (see 40 CFR 63.7821).<sup>32</sup>

In the analyses for nonpoint sources (described in sections II, III, and IV.B), we estimated the amount of fugitive PM and metal HAP potentially emitted from these two nonpoint sources, BF casthouses and BOPF shops. The occurrence of visible plumes of fugitives being emitted from these process structures has been observed during inspections and documented in reports and photographs by EPA Regional staff for years 2008 to present.<sup>2</sup> In the ample margin of safety analysis under Option 1 described above (see section IV.B), we evaluated potential work practices to reduce uncaptured fugitive emissions from BF casthouses and BOPF shops; these sources contribute the highest risk of all UFIP sources. We also considered whether these work practices (described above under Option 1 in section IV.B to reduce fugitive emissions and associated risks from these sources) may constitute a development in work practices, processes, or technology to reduce fugitive emissions from BF casthouses and BOPF shops pursuant to section 112(d)(6) of the CAA that was not identified or considered during development of the original MACT standards. For more details of the technology review, see the technical memorandum titled *Technology Review for the Integrated Iron and Steel NESHAP*, available in the docket to this rule for details of the evaluation of work practices for control of fugitive HAP

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<sup>32</sup> New BOPF sources have a 10-percent opacity limit, with one 6-minute period greater than 10 percent but less than the 20 percent allowed each steel production cycle. For new BF, the opacity limit is 15 percent.

emissions from BF casthouses and BOPF shops. The estimated capital costs for work practices for these two nonpoint sources are \$1.4 million and annualized costs are \$1.7 million. We estimate these work practices would achieve about 173 tpy reduction in metal HAP.

Nevertheless, as described above, there are significant uncertainties in the baseline UFIP emissions, estimated reductions that would be achieved by the work practices, and costs. There are also uncertainties regarding the effect the work practices would have on facility operations, economics, and safety.

After considering all the information described above, we propose to find that there are no developments in practices, processes, or control technologies that necessitate revising the standards for these two UFIP sources under CAA section 112(d)(6). This decision is based largely on the considerable uncertainties described above along with the cost issues.

We ask for comments on our proposed decision, the costs and effectiveness of the work practices for the two UFIP sources, and whether these work practices should be viewed as a development in practices, processes, or technologies (pursuant to CAA section 112(d)(6)) to reduce emissions at BF casthouses and BOPF shops, and whether further control of the above-mentioned fugitives from these processes by implementation of the work practices should be required under the technology review for this source category. These costs and reductions are described in detail in the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*, available in the docket to this rule, and discussed above.

In summary, we propose to find that there are no cost-effective developments in practices, processes, or control technologies for these two UFIP sources. Therefore, we are not proposing any requirements under CAA section 112(d)(6) based on our technology review.

However, we are soliciting comments on the potential of these work practices to reduce emissions from the two UFIP sources, as described above.

*D. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?*

Separate from the RTR, in this action we are proposing standards for mercury emissions pursuant to CAA section 112(d)(2) and (3).<sup>33</sup> The results of the analyses performed pursuant to CAA section 112(d)(2) and (3) and the standards proposed are presented below.

1. Background Regarding Mercury Emissions from the Source Category

The current NESHAP for Integrated Iron and Steel Manufacturing does not include mercury emission standards. Based on data from the 2010 ICR, we estimate the facilities in the source category emitted about 1,000 lb/year of mercury in 2010. Based on the CAA section 114 test results, most (80 percent) of the mercury is from the BOPF and associated operations (*i.e.*, HMTDS and ladle metallurgy). An examination of possible sources of mercury from the BOPF and associated operations revealed that the use of post-consumer steel scrap, as reported in the ICR, was the most likely source of mercury. Based on our understanding of the types of scrap and raw materials processed and the likely sources of mercury in various materials, we conclude that the predominant contributor to mercury emissions at integrated iron and steel facilities is the motor vehicle convenience switches that contain mercury (*i.e.*, mercury switches) that are found in vehicles built before 2003 and end up in steel scrap. Therefore, it is reasonable to conclude that mercury emissions from Integrated Iron and Steel Manufacturing facilities predominantly

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<sup>33</sup> The EPA has authority under CAA section 112(d)(2) and (3) to set MACT standards for previously unregulated emission points. The EPA also retains the discretion to revise a MACT standard under the authority of CAA section 112(d)(2) and (3) (see *Portland Cement Ass'n v. EPA*, 665 F.3d 177, 189 (D.C. Cir. 2011), such as when it identifies an error in the original standard. See also *Medical Waste Institute v. EPA*, 645 F.3d 420, 426 (D.C. Cir. 2011) (upholding EPA action establishing MACT floors, based on post-compliance data, when originally-established floors were improperly established).

result from steel scrap containing mercury switches fed into the BOPF. Details of the sources of mercury emissions can be found in the technical memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities*, available in the docket to this rule, that describes the sources of mercury from Integrated Iron and Steel Manufacturing facilities and the issues and costs involved in control of mercury.

However, based on models developed from analysis of the age of motor vehicles in the U.S. vehicle fleet, we estimate that mercury emissions from this source category are about 50 percent lower today as compared to 2010 and are expected to continue to decline over the coming years due to the 2003 U.S. motor vehicle mercury switch ban and the National Vehicle Mercury Switch Recovery Program (NVMSRP). For more information about the mercury emissions and predicted reductions see the technical memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities*, available in the docket for this action.

The NVMSRP is a cooperative effort established in 2006 among vehicle manufacturers, steel manufacturers, vehicle dismantlers, scrap shredders, the EPA, and other stakeholders, to support the removal of mercury switches from end-of-life vehicles. The NVMSRP involves more than 10,000 steel recyclers. The initial Memorandum of Understanding (MOU) between the NVMSRP parties was signed in 2006. On November 15, 2018, the EPA signed a renewed MOU that extends the program through 2021. Given its success, the EPA continues to support the NVMSRP that already has removed and safely recycled more than 6.8 million mercury switches containing a total of more than 7.6 tons of mercury. The MOU, renewed MOU, and other information regarding the NVMSRP are available at: <https://www.epa.gov/smartsectors/mercury-switch-recovery-program>, and in the docket for this rule.

## 2. Reconsideration Petition

In 2004, the EPA received a petition for reconsideration from the Sierra Club, who referred to the EPA's statement in the Integrated Iron and Steel Manufacturing NESHAP that steel plants emit mercury but not in appreciable quantities. Sierra Club argued that the CAA does not allow the EPA not to set standards because emissions are insignificant. In 2005, the EPA granted reconsideration to evaluate a possible mercury standard. Consequently, the EPA is proposing in this action an emissions standard for mercury for the Integrated Iron and Steel Manufacturing source category pursuant to CAA section 112(d)(3).

## 3. Proposed MACT Standards for Mercury

Section 302(k) of the CAA defines an emission standard as a requirement "which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter."

Pursuant to CAA section 112(d)(3), we are proposing a MACT floor limit of 0.00026 lbs of mercury per ton of scrap processed as an input-based limit for all existing BOPFs and existing integrated iron and steel manufacturing facilities. This limit was derived using ICR test data of the mass of mercury emissions from all BOPFs and related units (HMTDS and ladles) at each facility per mass of scrap used by each facility in their BOPFs with the assumption that the mass of mercury emitted from all BOPFs and related units is equivalent to the mass of mercury in the scrap input because mercury is neither created or destroyed in the BOPF. The mercury-to-scrap input ratios from the best performing five facilities out of all 11 integrated iron and steel manufacturing facilities in the Integrated Iron and Steel Manufacturing source category were

used to develop an input-based MACT floor for mercury. We then determined an upper prediction limit (UPL) to develop the mercury standard that incorporates the potential variability in future measurements. Because there are fewer than 30 sources in the Integrated Iron and Steel Manufacturing source category, as described below, we evaluated the best performing five sources in the category, pursuant to CAA section 112(d)(3)(B).

The EPA's MACT analyses use the UPL approach to identify the average emission limitation achieved by the best performing sources. The EPA uses this approach because it incorporates the average performance of the best performing sources as well as the variability of the performance during testing conditions. The UPL represents the value which one can expect the mean of a specified number of future observations (*e.g.*, 3-run average) to fall below for the specified level of confidence (99 percent), based upon the results from the same population. In other words, the UPL estimates what the upper bound of future values will be based upon present or past background data. The UPL approach encompasses all the data point-to-data point variability in the collected data, as derived from the dataset to which it is applied. For more details regarding how this limit was derived, see the technical memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities*, located in the docket for this rule, and described above.

We are proposing that existing facilities would have two options to demonstrate compliance with the proposed input-based limit of 0.00026 lbs of mercury per ton of scrap processed, as follows: (1) conduct an annual emissions test at all BOPF-related units and convert the sum of the results to input-based units (*i.e.*, lb of mercury per ton of scrap input) and document the results in a test report that can be submitted electronically to the delegated authority with the results (see section IV.E below); or (2) certify annually that the facility obtains

all of their scrap from NVMSRP participants (or similar program as approved by the delegated authority) or establish that their scrap is not likely to contain mercury.

Although we do not know exactly what type of scrap was used when the integrated iron and steel facilities performed the ICR testing for mercury,<sup>34</sup> we assume the scrap was either NVMSRP scrap or scrap with higher amounts of mercury per ton of scrap than NVMSRP scrap. It is reasonable for the EPA to conclude that NVMSRP scrap in the future will contain similar levels of mercury or less mercury than the scrap used to develop the MACT floor limit, and this proposal relies on that conclusion. Therefore, if a facility opts to comply with the emission limit by certifying that all their scrap is from NVMSRP participants (or a similar approved program) or establishes that their scrap is not likely to contain mercury, it is also reasonable to conclude that the amount of mercury in the scrap achieves the same level of mercury reduction or more reduction as the numeric MACT floor limit.

Pursuant to CAA section 112(d)(3) requirements for new sources, the standard for new sources shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, we are proposing a new source MACT limit of 0.00008 lbs of mercury per ton of scrap processed as an input-based limit for any new BOPF and new integrated iron and steel manufacturing facility. A new BOPF and new integrated iron and steel manufacturing facility is defined to be any BOPF or facility constructed or reconstructed on or after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. This limit was

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<sup>34</sup> It is our understanding that there are at least three facilities in the Integrated Iron and Steel Manufacturing source category that obtain all their steel scrap from scrap providers that participate in the NVMSRP. (Personal communication (telephone).) P. Balserak, AISI, Washington, DC, with C. French, U. S. EPA, Research Triangle Park, North Carolina. December 13, 2018.). Also, during other discussions in 2018, industry representatives indicated they believed all, or most, facilities obtain all of their steel scrap from scrap providers that participate in the NVMSRP. However, we have not yet confirmed this information.



derived using ICR test data of the mass of mercury emissions from all BOPF and related units (HMTDS and ladles) per mass of scrap used by the lowest-emitting facility. In addition, similar to existing sources above, we are proposing that new BOPF or new facilities would have two options to demonstrate compliance with the proposed input-based limit of 0.00008 lbs of mercury per ton of scrap processed, as follows: (1) conduct an annual emissions test at all BOPF-related units and convert the sum of the results to input-based units (*i.e.*, lbs of mercury per ton of scrap input) and document the results in a test report that can be submitted electronically to the delegated authority with the results (see section IV.E below); or (2) certify annually that the facility obtains all of their scrap from NVMSRP participants (or similar program as approved by the delegated authority) or certify that their scrap is not likely to contain mercury.

Following the same reasoning discussed above in connection with the existing source standard, although we do not know exactly what type of scrap was used when the integrated iron and steel facilities performed the ICR testing for mercury, we assume the scrap was either NVMSRP scrap or scrap with higher amounts of mercury per ton of scrap than NVMSRP scrap. Therefore, it is reasonable for the EPA to conclude that scrap subject to the NVMSRP or other approved scrap program in the future will contain similar levels of mercury or less mercury than the scrap used to develop the MACT floor limit, and this proposal relies on that conclusion. We request comment on our proposed emissions standards for mercury at new and existing BOPF-related units.

In terms of cost impacts, our analysis indicates that all facilities could meet the mercury limit in 2020 without any additional add-on controls. With declining mercury levels in vehicle scrap, we expect that all facilities that obtain all their scrap from suppliers who participate in the NVMSRP or similar approved program will meet this input-based standard without the need for

any additional controls. For facilities that choose to comply by certifying they get all their scrap from NVMSRP participants, or a similar switch removal program, we estimate that the only costs to comply with this standard would be for recordkeeping and reporting, which we estimate at \$1,058 per year per facility, and \$11,639 per year for all 11 integrated iron and steel manufacturing facilities. If one or more facilities choose to conduct annual emissions tests, their costs would be higher due to the costs for the emissions tests. The costs to conduct an annual emissions test at all BOPF-related units, convert the sum of the results to input-based units (*i.e.*, lb of mercury per ton of scrap input), and document the results in a test report that can be submitted electronically to the delegated authority with the results is estimated to be approximately \$151,000 per year per facility and \$1,660,000 for the total industry.

However, we assume all, or most, facilities will choose the option to comply by certifying scrap selection. We request comment on these compliance costs and also the assumption that purchasing scrap from NVMSRP scrap providers or a similar approved program results in a small additional cost to facilities. For more information regarding the derivation of the cost estimates for this proposed mercury standard and all aspects of mercury emissions and controls, see the document titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities*, available in the docket to this rule.

#### 4. Consideration of Beyond-the-Floor Options

The EPA also evaluated possible beyond-the-floor options based on the addition of ACI with baghouses on BOPF and related units to further reduce emissions of mercury coming from their existing control devices (scrubbers, baghouses, and ESPs). We estimate the total capital costs for installing baghouse (if not already present) and ACI systems would be \$24 million and annualized costs would be \$38 million, and would achieve about 280 lbs mercury reduction per

year for the first few years of compliance with such standards, based on the amount of mercury projected to be in the scrap in 2020 and considering the decrease in mercury expected in motor vehicle scrap. This results in estimated cost effectiveness of \$136,000 per lb of mercury reductions. However, under this option, the amount of emissions and associated reductions would decrease over time as a result of the expected decline in mercury input due to the 2003 ban on mercury switches and aging of the vehicle fleet. Therefore, the beyond-the-floor controls would become less cost effective over time. For this reason, and because of the relatively high capital and annualized cost of ACI with baghouses, and poor cost effectiveness, the EPA is not proposing a beyond-the-floor option based on ACI with baghouses. See the document titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities*, available in the docket to this rule, for details regarding the derivation of the cost and emission estimates for the beyond-the-floor option.

## 5. New Terms and Definitions

With the addition of proposed MACT standards for mercury and to clarify a few other aspects of the NESHAP, we are proposing to add new terms along with their definitions. We ask for comment on the clarity of these definitions.

- Basic oxygen process furnace group means the collection of BOPF shop steelmaking operation units including the BOPF primary units (BOPF emissions from oxygen blow iron refining), BOPF secondary units (secondary fugitive emissions in the shop from iron charging, tapping, and auxiliary processes not elsewhere controlled), ladle metallurgy units, and hot metal transfer, desulfurization, and slag skimming units;
- Deviation for an affected source subject to this subpart, or an owner or operator of such a source, also includes failure to meet any requirement or obligation established by this rule,

including, but not limited to, any emission limitation (including operating limits), standard, or operation and maintenance requirement;

- Mercury switch means a mercury-containing capsule or switch assembly that is part of a convenience light switch mechanism installed in a motor vehicle;
- Motor vehicle means an automotive vehicle not operated on rails and usually operated with rubber tires for use on highways;
- Motor vehicle scrap means post-consumer scrap from discarded vehicles or automobile bodies, including automobile body hulks that have been processed through a shredder. Motor vehicle scrap does not include automobile manufacturing bundles or miscellaneous vehicle parts, such as wheels, bumpers, or other components that do not contain mercury switches. Motor vehicle scrap typically is not sold separately but is combined with other steel scrap for sale;
- Opening means any roof monitor, vent, door, window, hole, crack, or other conduit that allows gas to escape to the atmosphere from a BF casthouse or BOPF shop;
- Post-consumer steel scrap means steel scrap that is composed of materials made of steel that were purchased by households or by commercial, industrial, and institutional facilities in their role as end-users of the product and which can no longer be used for its intended purpose;
- Pre-consumer steel scrap means steel scrap that is left over from industrial or manufacturing processes and which is subsequently recycled as scrap. Other terms used to describe this scrap are new, home, run-around, prompt-industrial, and return scrap;
- Scrap provider means the company or person (including a broker) who contracts directly with a steel mill to provide steel scrap. Scrap processors such as shredder operators or vehicle

dismantlers that do not sell scrap directly to a steel mill are not scrap providers; and

- Steel scrap means pre-consumer and post-consumer discarded steel that is processed by scrap providers for resale (post-consumer) or used on-site (pre-consumer or run-around scrap from within a facility or company). Post-consumer steel scrap may or may not contain motor vehicle scrap, depending on the type of scrap. In regard to motor vehicle scrap, steel scrap only can be classified as “scrap that is likely to contain motor vehicle scrap” vs. “scrap that is not likely to contain motor vehicle scrap,” as determined by the scrap provider.

*E. What other actions are we proposing?*

In addition to the proposed actions described above, we are proposing additional revisions to the NESHAP. We are proposing revisions to the SSM provisions of the MACT rule in order to ensure that they are consistent with the Court decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also are proposing various other changes to modify reporting and monitoring. Our analyses and proposed changes related to these issues are discussed below.

1. SSM

In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the Court vacated portions of two provisions in the EPA’s CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, CAA section 112 emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA’s requirement that some CAA section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in this rule which appears at 40 CFR 63.7810(a) and Table 4. Consistent with *Sierra Club v. EPA*, we are proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 4 (the General Provisions Applicability Table) as is explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate standards for those periods. The integrated iron and steel manufacturing industry has not identified (and there are no data indicating) any specific problems with removing the SSM provisions. However, we solicit comment on whether any situations exist where separate standards, such as work practices, would be more appropriate during periods of startup and shutdown rather than the current standard.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden infrequent and not reasonably preventable failures of emissions control, process, or monitoring equipment. (40 CFR 63.2) (definition of malfunction). The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards and this reading has

been upheld as reasonable by the Court in *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (2016). Under CAA section 112, emissions standards for new sources must be no less stringent than the level “achieved” by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation “achieved” by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level “achieved” by the best performing sources when setting emission standards. As the Court has recognized, the phrase “average emissions limitation achieved by the best performing 12 percent of” sources “says nothing about how the performance of the best units is to be calculated.” *Nat’l Ass’n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a “normal or usual manner” and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

As the Court recognized in *U.S. Sugar Corp.*, accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. *Id.* at 608 (“the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances.”). As such, the performance of units that are malfunctioning is not

“reasonably” foreseeable. See, e.g., *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999) (“The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency’s decision to proceed on the basis of imperfect scientific information, rather than to ‘invest the resources to conduct the perfect study.’”) See also, *Weyerhaeuser v. Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978) (“In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by ‘uncontrollable acts of third parties’, such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation.”). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99-percent removal goes off-line as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source’s emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA’s approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

Although no statutory language compels the EPA to set standards for malfunctions, the



EPA has the discretion to do so where feasible. For example, when the EPA conducted the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunctions that result in releases from pressure relief devices or emergency flaring events because the EPA had information to determine that such work practices reflected the level of control that applies to the best performers. 80 FR 75178, 75211-14 (December 1, 2015). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction and, if so, whether the EPA has sufficient information to identify the relevant best performing sources and establish a standard for such malfunctions. We also encourage commenters to provide any such information.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, sudden, infrequent, not reasonably preventable, and was not instead caused in part by poor maintenance or careless operation. 40 CFR 63.2 (definition of malfunction).

If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the Federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112 is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606-610 (2016).

*a. 40 CFR 63.7810(c) General Duty*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.6(e)(1)(i) and including a “no” in column 3. Section 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are proposing instead to add general duty regulatory text at 40 CFR 63.7810(c) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown, and malfunction events in describing the general duty. Therefore, the language the EPA is proposing for 40 CFR 63.7810(c) does not include that language from 40 CFR 63.6(e)(1).

We are also proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.6(e)(1)(ii) and including a “no” in column 3. Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.7810(c).

*b. SSM Plan*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for

40 CFR 63.6(e)(3) and including a “no” in column 3. Generally, the paragraphs under 40 CFR 63.6(e)(3) require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary.

*c. Compliance with Standards*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.6(f)(1) and including a “no” in column 3. The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise standards in this rule to apply at all times.

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.6(h)(1) and including a “no” in column 3. The current language of 40 CFR 63.6(h)(1) exempts sources from opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise standards in this rule to apply at all times.

*d. 40 CFR 63.7822 and 63.7823 Performance Testing*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.7(e)(1) and including a “no” in column 3. Section 63.7(e)(1) describes performance

testing requirements. The EPA is instead proposing to add a performance testing requirement at 40 CFR 63.7822(a) and 63.7823(a). The performance testing requirements we are proposing to add differ from the General Provisions performance testing provisions in several respects. The regulatory text does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered “representative” for purposes of performance testing. The revised performance testing provisions require testing under representative operating conditions and exclude periods of startup and shutdown.

As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are often not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Section 63.7(e) requires that the owner or operator make available to the Administrator such records “as may be necessary to determine the condition of the performance test” available to the Administrator upon request but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this provision builds on that requirement and makes explicit the requirement to record the information.

#### *e. Monitoring*

We are proposing to revise the General Provisions table (Table 4) by adding entries for 40 CFR 63.8(c)(1)(i) and (iii) and including a “no” in column 3. The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of

other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.8(d)(3) and including a “no” in column 3. The final sentence in 40 CFR 63.8(d)(3) refers to the General Provisions’ SSM plan requirement which is no longer applicable. The EPA is proposing to add to the rule at 40 CFR 63.7842(b)(3) text that is identical to 40 CFR 63.8(d)(3) except that the final sentence is replaced with the following sentence: “The program of corrective action should be included in the plan required under §63.8(d)(2).”

*f. 40 CFR 63.7842 Recordkeeping*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(b)(2)(i) and including a “no” in column 3. Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because the EPA is proposing that recordkeeping and reporting applicable to normal operations would apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods.

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(b)(2)(ii) and including a “no” in column 3. Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.7842. The regulatory text we are proposing to add differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution

control, and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the “occurrence.” The EPA is also proposing to add to 40 CFR 63.7842(a)(4) a requirement that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(b)(2)(iv) and including a “no” in column 3. When applicable, the provision requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans would no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by reference to 40 CFR 63.7842(a)(5).

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(b)(2)(v) and including a “no” in column 3. When applicable, the provision requires sources to record actions taken during SSM events to show that actions taken were

consistent with their SSM plan. The requirement is no longer appropriate because SSM plans would no longer be required.

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(c)(15) and including a “no” in column 3. The EPA is proposing that 40 CFR 63.10(c)(15) no longer apply. When applicable, the provision allows an owner or operator to use the affected source's SSM plan or records kept to satisfy the recordkeeping requirements of the SSM plan, specified in 40 CFR 63.6(e), to also satisfy the requirements of 40 CFR 63.10(c)(10) through (12). The EPA is proposing to eliminate this requirement because SSM plans would no longer be required, and, therefore, 40 CFR 63.10(c)(15) no longer serves any useful purpose for affected units.

*g. 40 CFR 63.7841 Reporting*

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(d)(5)(i) and including a “no” in column 3. Section 63.10(d)(5)(i) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.7841(b)(4). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semiannual reporting period compliance report already required under this rule. We are proposing that the report would contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We would no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments, therefore, eliminate the cross reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events would be reported in otherwise required reports with similar format and submittal requirements.

We are proposing to revise the General Provisions table (Table 4) by adding an entry for 40 CFR 63.10(d)(5)(ii) and including a “no” in column 3. Section 63.10(d)(5)(ii) describes an immediate report for startups, shutdown, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. We would no longer require owners and operators to report when actions taken during a startup, shutdown, or malfunction were not consistent with an SSM plan, because plans would no longer be required.

## 2. Electronic Reporting

Through this proposal, the EPA is proposing that owners and operators of integrated iron and steel manufacturing facilities submit the required electronic copies of summaries of performance test results and semiannual reports through the EPA’s Central Data Exchange



(CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in Docket ID No. EPA-HQ-OAR-2002-0083. The proposed rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT), as listed on the ERT website<sup>35</sup> at the time of the test, be submitted in the format generated through the use of the ERT, and that other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT. Similarly, performance evaluation results of continuous monitoring systems measuring relative accuracy test audit pollutants that are supported by the ERT at the time of the test would be submitted in the format generated through the use of the ERT and other performance evaluation results be submitted in PDF using the attachment module of the ERT.

For semiannual compliance reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. A draft version of the proposed template for these reports is included in the docket for this rulemaking.<sup>36</sup> The EPA specifically requests comment on the content, layout, and overall design of the template.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting

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<sup>35</sup> <https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>.

<sup>36</sup> See 40 CFR part 63, subpart FFFFF, National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities – 40 CFR 63.7841(b), Semiannual Compliance Report Spreadsheet Template, available at Docket ID. No. EPA-HQ-OAR-2002-0083.

should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. The situation where an extension may be warranted due to outages of the EPA's CDX or CEDRI which precludes an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.7841(e). The situation where an extension may be warranted due to a force majeure event, which is defined as an event that would be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents an owner or operator from complying with the requirement to submit a report electronically as required by this rule is addressed in 40 CFR 63.7841(f). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the

public. Moreover, electronic reporting is consistent with the EPA's plan<sup>37</sup> to implement Executive Order 13563 and is in keeping with the EPA's Agency-wide policy<sup>38</sup> developed in response to the White House's Digital Government Strategy.<sup>39</sup> For more information on the benefits of electronic reporting, see the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in Docket ID No. EPA-HQ-OAR-2002-0083.

### 3. Incorporation by Reference Under 1 CFR part 51

The EPA is proposing regulatory text that includes incorporation by reference (IBR). In accordance with requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference the following documents described in the amendments to 40 CFR 63.14:

- ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], (Issued August 31, 1981), IBR approved for 40 CFR 63.7822(b) and 63.7824(e). This method determines quantitatively the gaseous constituents of exhausts resulting from stationary combustion sources. The gases covered in the method are oxygen, carbon dioxide, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons.
- EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, IBR approved for 40 CFR

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<sup>37</sup> EPA's Final Plan for Periodic Retrospective Reviews, August 2011. Available at: <https://www.regulations.gov/document?D=EPA-HQ-OA-2011-0156-0154>.

<sup>38</sup> E-Reporting Policy Statement for EPA Regulations, September 2013. Available at: <https://www.epa.gov/sites/production/files/2016-03/documents/epa-ereporting-policy-statement-2013-09-30.pdf>.

<sup>39</sup> Digital Government: Building a 21<sup>st</sup> Century Platform to Better Serve the American People, May 2012. Available at: <https://obamawhitehouse.archives.gov/sites/default/files/omb/egov/digital-government/digital-government.html>.

63.7831(f). This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures.

The EPA has made, and will continue to make, the EPA document generally available electronically through <https://www.regulations.gov/> and at the EPA Docket Center (see the **ADDRESSES** section of this preamble for more information). The ANSI/ASME document is available from the American Society of Mechanical Engineers (ASME) at <http://www.asme.org>; by mail at Three Park Avenue, New York, NY 10016-5990; or by telephone at (800) 843-2763.

#### 4. Technical and Editorial Changes

The following lists additional proposed changes that address technical and editorial corrections:

- Revised 40 CFR 63.7822 and 63.7823 to specify the conditions for conducting performance tests;
- Revised 40 CFR 63.7822, 63.7823, 63.7824, and 63.7833 to clarify the location in 40 CFR part 60 of applicable EPA test methods;
- Revised 40 CFR 63.7822 and 63.7824 to add IBR for ANSI/ASME PTC 19.10–1981;
- Revised Tables 1 and 3 to clarify that opacity observations be made at all openings to the BF casthouse;
- Revised Tables 1, 2, and 3 to clarify that the affected source is each BOPF shop, rather than only the roof monitor at the BOPF shop;
- Revised Table 1 to add a mercury emission limit, revised Table 2 to add demonstration of initial compliance with the mercury emission limit, and revised Table 3 to add

demonstration of continuous compliance with the mercury emission limit

- Revised 40 CFR 63.7831 to add IBR for EPA-454/R-98-015;
- Revised 40 CFR 63.7835, 63.7841, and 63.7842 to include the requirements to record and report information on failures to meet the applicable standard; and
- Revised 40 CFR 63.7852 to add definitions for "basic oxygen process furnace group," "mercury switch," "motor vehicle," "motor vehicle scrap," "opening," "post-consumer steel scrap," "pre-consumer steel scrap," "steel scrap," and "scrap provider."

*F. What compliance dates are we proposing?*

Because most of these amendments provide corrections and clarifications to the current rule and do not impose new requirements on the industry, we are proposing that these amendments become effective 180 days after promulgation of the final rule, except for the provisions for mercury control via scrap selection or meeting scrap input-based emission standards, for which we are requiring compliance for existing sources within 1 year of promulgation. New sources, defined to be new BOPF or facilities constructed or reconstructed after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, are subject to the new source mercury limit on the effective date of the final rule.

We are proposing the 1-year existing source compliance date to allow facilities to switch scrap suppliers, if needed, and become familiar with the reporting requirements for scrap providers; for facilities who would choose to comply with the input-based mercury scrap limit, the compliance date was chosen so as to allow for arrangements for testing and reporting of test results. We solicit comments on the timeframe for compliance and the ability of facilities to comply within this timeframe.

Our experience with similar industries that are required to convert reporting mechanisms,

install necessary hardware and software, become familiar with the process of submitting performance test results electronically through the EPA's CEDRI, test these new electronic submission capabilities, reliably employ electronic reporting, and convert logistics of reporting processes to different time-reporting parameters, shows that a time period of a minimum of 90 days, and more typically, 180 days, is generally necessary to successfully complete these changes. Our experience with similar industries further shows that this sort of regulated facility generally requires a time period of 180 days to read and understand the amended rule requirements; evaluate their operations to ensure that they can meet the standards during periods of startup and shutdown as defined in the rule and make any necessary adjustments; adjust parameter monitoring and recording systems to accommodate revisions; and update their operations to reflect the revised requirements. The EPA recognizes the confusion that multiple different compliance dates for individual requirements would create and the additional burden such an assortment of dates would impose. From our assessment of the timeframe needed for compliance with the entirety of the revised requirements excluding the mercury requirements, the EPA considers a period of 180 days to be the most expeditious compliance period practicable, and, thus, is proposing that existing affected sources be in compliance with all of this regulation's revised requirements within 180 days of the regulation's effective date.

## V. Summary of Cost, Environmental, and Economic Impacts

### *A. What are the affected sources?*

These proposed amendments to the Integrated Iron and Steel Manufacturing NESHAP include rule updates that address electronic reporting requirements and changes in policies regarding SSM that affect all integrated iron and steel manufacturing facilities. The proposed requirement to purchase scrap from scrap providers who certify they participate in the NVMSRP

or a similar approved program or use scrap not likely to contain mercury would affect any facility that uses post-consumer steel scrap in their BOPFs, potentially all integrated iron and steel manufacturing facilities.

*B. What are the air quality impacts?*

We are proposing scrap selection requirements to control and reduce mercury emissions. Air quality is expected to improve as a result of the proposed amendments in proportion to the number of facilities that are not currently purchasing scrap from providers who participate in the NVMSRP or another approved program, or who use scrap not likely to contain mercury. We solicit comment on this assumption of air quality improvements and the extent of such improvements.

Although we are not proposing requirements to control HAP emitted from nonpoint sources, the work practices presented as potential methods to control these emissions would improve air quality. We solicit comment on the potential for improvement in air quality by reduction in HAP and PM<sub>2.5</sub> with the implementation of the work practices for nonpoint sources.

*C. What are the cost impacts?*

In this proposal, as described above, we are proposing compliance testing or scrap selection requirements to control and reduce mercury emissions. We expect that facilities that choose scrap selection likely will not incur operational costs to comply with this requirement because we believe that most, if not all, facilities are already purchasing scrap from providers who participate in the NVMSRP. However, we estimate a cost of \$1,058 per year per facility and \$11,638 per year for all 11 facilities in the industry, for recordkeeping and reporting of compliance with the program. We solicit comment on this assumption and the estimated costs for the proposed mercury standard.

Although we are not proposing requirements to control HAP emitted from seven nonpoint sources, we estimate that the work practices evaluated to reduce these emissions would cost an estimated \$8.7 million in capital costs and \$3 million annually to the industry if they were included in the rule. We estimate the total capital costs of proposing requirements to control HAP from the two nonpoint sources of BF casthouse and BOPF shop to be about \$1.4 million and annualized costs to be about \$1.7 million per year. These costs are described in the memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*, available in the docket to this rule. We solicit comment on these estimated costs of implementation of work practices for nonpoint sources.

*D. What are the economic impacts?*

No economic impacts are expected to be incurred by integrated iron and steel manufacturing facilities due to the proposed mercury standard because we believe that most, if not all, facilities are already purchasing scrap from providers who participate in the NVMSRP. We solicit comment on this assumption.

Although we are not proposing requirements to control HAP emitted from nonpoint sources, the work practices evaluated to reduce these emissions could have an economic impact on facilities if they were required. We solicit comment on the potential economic impact on integrated iron and steel manufacturing facilities if implementation of these work practices for nonpoint sources was required. There may be energy savings from reducing leaks of BF gas from bells, which is one of the work practices described in this preamble. We solicit comment on the potential cost savings for integrated iron and steel manufacturing facilities with implementation of this work practice.

*E. What are the benefits?*



The proposed amendments may result in some unquantified reductions in emissions of mercury, depending on the extent of current limitation of mercury input or participation in the scrap selection program by integrated iron and steel manufacturing facilities. While the EPA believes most, or all, facilities are already meeting the proposed mercury standard, to the extent that additional reductions may be achieved, if finalized, this rule would result in improved health in surrounding populations, especially protection of children from the negative health impacts of mercury exposure.

The proposed requirements to submit reports and test results electronically would improve monitoring, compliance, and implementation of the rule.

Although we are not proposing requirements to control HAP emitted from nonpoint sources, the work practices evaluated to reduce these HAP emissions (with concurrent control of PM and PM<sub>2.5</sub>) and for which EPA is soliciting comment on, if adopted, could improve air quality and health of persons living in surrounding communities.

## **VI. Request for Comments**

We solicit comments on this proposal. In addition to general comments on this proposed action, we are especially interested in receiving comments regarding the estimated emissions from nonpoint (UFIP) sources, the potential for the work practices, individually or together, to reduce emissions from the nonpoint sources, and the estimated costs of the work practices. We are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used in the risk assessment, including the estimates and assumptions used for the example facility risk assessment. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or

information. Section VII of this preamble provides more information on submitting data.

## **VII. Submitting Data Corrections**

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR website at <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards>. The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern, and provide any “improved” data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR website, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.
2. Fill in the commenter information fields for each suggested revision (*i.e.*, commenter name, commenter organization, commenter email address, commenter phone number, and revision comments).
3. Gather documentation for any suggested emissions revisions (*e.g.*, performance test reports, material balance calculations).
4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA-HQ-OAR-2002-0083 (through the method described in the **ADDRESSES** section of this preamble).
5. If you are providing comments on a single facility or multiple facilities, you need only

submit one file for all facilities. The file should contain all suggested changes for all sources at that facility (or facilities). We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR website at <https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards>.

## **VIII. Statutory and Executive Order Reviews**

Additional information about these statutes and Executive Orders can be found at <https://www.epa.gov/laws-regulations/laws-and-executive-orders>.

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This action is a significant regulatory action that was submitted to OMB for review because it has novel legal and policy issues. Any changes made in response to OMB recommendations have been documented in the docket.

### *B. Executive Order 13771: Reducing Regulation and Controlling Regulatory Costs*

This action is not expected to be subject to Executive Order 13771 because this proposed rule is expected to result in no more than *de minimis* costs.

### *C. Paperwork Reduction Act (PRA)*

The information collection activities in this proposed rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2003.08. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

We are proposing amendments that require electronic reporting; remove the SSM exemptions; and impose other revisions that affect reporting and recordkeeping for integrated

iron and steel manufacturing facilities. We are also proposing standards for mercury that will require facilities to certify the type of steel scrap they use. This information would be collected to assure compliance with 40 CFR part 63, subpart FFFFF.

*Respondents/affected entities:* Integrated iron and steel manufacturing facilities.

*Respondent's obligation to respond:* Mandatory (40 CFR part 63, subpart FFFFF).

*Estimated number of respondents:* 11 facilities.

*Frequency of response:* One time.

*Total estimated burden of entire rule:* The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be 6,500 hours (per year). Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost of entire rule:* The annual recordkeeping and reporting cost for all facilities to comply with all of the requirements in the NESHAP is estimated to be \$800,000 (per year), of which \$20,000 (per year) is for this proposal, and \$780,000 is for other costs related to continued compliance with the NESHAP including \$50,300 for paperwork associated with operation and maintenance requirements. The total rule costs reflect a savings of \$240,000 (per year) from the previous ICR due to the transition to electronic reporting.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to

*OIRA\_submission@omb.eop.gov*, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the final rule.

*D. Regulatory Flexibility Act (RFA)*

I certify that this action would not have a significant economic impact on a substantial number of small entities under the RFA. This action would not impose any requirements on small entities. No small entities are subject to the requirements of this rule.

*E. Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments or the private sector.

*F. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

*G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

This action does not have tribal implications as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. No tribal governments own facilities subject to the NESHAP. Thus, Executive Order 13175 does not apply to this action.

*H. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks*

This action is not subject to Executive Order 13045 because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections III and IV of this preamble and further documented in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available in the docket for this action.

*I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Only one new standard is proposed in this rule, which under one compliance option would require facilities to purchase steel scrap from suppliers who participate in a pollution prevention program approved by the EPA, where motor vehicle switches containing mercury are removed from steel scrap by the suppliers before sale. These suppliers already provide steel scrap to most (or all) of the current integrated iron and steel manufacturing facilities.

*J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51*

This action involves technical standards. The EPA proposes to use ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," for its manual methods of measuring the oxygen or carbon dioxide content of the exhaust gas. This standard is acceptable as an alternative to EPA Method 3B and is available from the American Society of Mechanical Engineers (ASME) at <http://www.asme.org>; by mail at Three Park Avenue, New York, NY 10016-5990; or by

telephone at (800) 843-2763.

*K. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994).

The documentation for this decision is contained in section IV.A of this preamble and the technical report titled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities*, available in the docket for this rule.

We examined the potential for any environmental justice issues that might be associated with the source category by performing a demographic analysis of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the NESHAP source category across different social, demographic, and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in a technical report titled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities*, available in the docket for this rule.

The results of the source category demographic analysis for the NESHAP (point sources only) indicate that emissions expose approximately 60 people to a cancer risk at or above 10-in-1 million and none exposed to a chronic noncancer TOSHI greater than or equal to 1. The specific demographic results indicate that the overall percentage of the population potentially impacted by emissions is less than its corresponding national percentage for the minority population (37

percent for the source category compared to 38-percent nationwide). However, the “African American” population (29 percent for the source category compared to 12 percent nationwide) and the population “Below the Poverty Level” are greater than their corresponding national percentages. The proximity results (irrespective of risk) indicate that the population percentages for certain demographic categories within 5 km of source category emissions are greater than the corresponding national percentage for certain demographics groups including: “African American,” “Ages 0 to 17,” “Over age 25 without a high school diploma,” and “Below the poverty level.”

The risks due to HAP emissions from this source category are low for all populations (*i.e.*, inhalation cancer risks are no greater than or equal to 10-in-1 million for all populations and noncancer HI are no greater than or equal to 1). Furthermore, we do not expect this proposal to achieve significant reductions in HAP emissions. Therefore, we conclude that this proposal will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. However, this proposal, if finalized, will provide additional benefits to these demographic groups by improving the compliance, monitoring, and implementation of the NESHAP.

#### **List of Subjects in 40 CFR Part 63**

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

Dated: August 6, 2019.



Andrew R. Wheeler,  
Administrator.

For the reasons set forth in the preamble, the EPA proposes to amend 40 CFR part 63 as follows:

**PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR  
POLLUTANTS FOR SOURCE CATEGORIES**

1. The authority citation for part 63 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

**Subpart A—[Amended]**

2. Section 63.14 is amended by revising paragraphs (e)(1) and (n)(3) to read as follows:

**§63.14 Incorporations by reference.**

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(e) \* \* \*

(1) ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.1282(d) and (g), 63.1625(b), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, 63.7822(b), 63.7824(e), 63.7825(b), 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJJ.

\* \* \* \* \*

(n) \* \* \*

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997,  
<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF>, IBR approved for §§63.548(e),

63.864(e), 63.7525(j), 63.7831(f), 63.8450(e), 63.8600(e), and 63.11224(f).

\* \* \* \* \*

**Subpart FFFFF—[Amended]**

3. Section 63.7782 is amended by revising paragraph (c) to read as follows:

**§63.7782 What parts of my plant does this subpart cover?**

\* \* \* \* \*

(c) This subpart addresses emissions from the sinter plant windbox exhaust, discharge end, and sinter cooler; the BF and casthouse; and the BOPF shop including each individual BOPF and shop ancillary operations (hot metal transfer, hot metal desulfurization, slag skimming, and ladle metallurgy).

\* \* \* \* \*

4. Section 63.7783 is amended by revising the introductory text of paragraph (a) and paragraphs (b) and (c) to read as follows:

**§63.7783 When do I have to comply with this subpart?**

(a) If you have an existing affected source, you must comply with each emission limitation, standard, and operation and maintenance requirement in this subpart that applies to you by the dates specified in paragraphs (a)(1) and (2) of this section.

\* \* \* \* \*

(b) If you have a new affected source and its initial startup date is on or before May 20, 2003, then you must comply with each emission limitation, standard, and operation and maintenance requirement in this subpart that applies to you by May 20, 2003.

(c) If you have a new affected source and its initial startup date is after May 20, 2003, you must comply with each emission limitation, standard, and operation and maintenance

requirement in this subpart that applies to you upon initial startup.

\* \* \* \* \*

5. The undesignated center heading before §63.7790 is revised to read as follows:

**“EMISSION LIMITATIONS AND STANDARDS”**

6. Section 63.7791 is added to read as follows:

**§63.7791 What are the requirements for the control of mercury from scrap?**

*Mercury requirements.* If you have an existing affected sources, you must meet the mercury emission limit for each BOPF Group in Table 1 to this subpart or procure steel scrap pursuant to the requirements in paragraphs (a) through (c) of this section beginning **[DATE 1 YEAR AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**. If the initial startup of your affected source is after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** but before **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must comply with the mercury requirements beginning **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**. If the initial startup of your affected source is after **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, then you must comply with the mercury requirements upon initial startup of your affected source. For participation in the National Vehicle Mercury Switch Recovery Program (NVMSRP), you must procure scrap pursuant to the requirements in paragraph (a) of this section for each scrap provider, contract, or shipment. For scrap not likely to contain motor vehicle scrap, you must procure scrap pursuant to the requirements in paragraph (b) of this section for each scrap provider, contract, or shipment. For scrap obtained under another EPA-approved program, you must procure scrap pursuant to the requirements in paragraph (c) of this section for each scrap provider, contract, or shipment. You

may have certain scrap providers, contracts, or shipments subject to one compliance provision and others subject to another compliance provision.

(a) *Participation in the NVMSRP.* (1) You must obtain all post-consumer scrap likely to contain vehicle scrap from scrap providers who participate in the NVMSRP. The NVMSRP is an EPA-approved program under this section unless and until the Administrator disapproves the program (in part or in whole);

(2) You must certify in your notification of compliance status that you purchase post-consumer steel scrap according to paragraph (a)(1) of this section;

(3) If you purchase scrap from a broker, you must certify that all scrap received from that broker was obtained from other scrap providers who participate in the NVMSRP;

(4) You must develop and maintain onsite a plan demonstrating the manner through which your facility is participating in the NVMSRP. The plan must include facility-specific implementation elements, corporate-wide policies, and/or efforts coordinated by a trade association as appropriate for each facility. The plan must include a list of all suppliers and proof of participation in an approved mercury reduction program. You must provide in the plan documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the permitting authority, you must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols; and

(5) You must conduct periodic inspections or provide other means of corroboration to ensure that scrap providers and brokers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

(b) *Scrap not likely to contain motor vehicle scrap.* For scrap not subject to the requirements in paragraphs (a) and (c) of this section, you must:

(1) Obtain information from scrap suppliers or other entity with established knowledge of scrap content that the steel scrap used is not likely to contain motor vehicle scrap and maintain records of the information; and

(2) Certify in your notification of compliance status that the scrap is not likely to contain motor vehicle scrap, according to the information obtained and recorded.

(c) *Use of approved mercury program.* (1) You must obtain all post-consumer scrap likely to contain vehicle scrap from scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (c)(1)(i) through (iii) of this section;

(i) The program includes outreach that informs the dismantlers of the need for removal of mercury switches and provides training and guidance for removing mercury switches;

(ii) The program has a goal to remove at least 80 percent of mercury switches from the motor vehicle scrap the scrap provider processes. Although a program approved under paragraph (c) of this section may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal; and

(iii) The program sponsor agrees to submit progress reports to the Administrator no less frequently than once every year that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an

estimate of the percent of mercury switches recovered, and certification that the recovered mercury switches were recycled at facilities with permits as required under the rules implementing subtitle C of RCRA (40 CFR parts 261 through 265 and 268). The progress reports must be based on a database that includes data for each program participant; however, data may be aggregated at the State level for progress reports that will be publicly available. The Administrator may change the approval status of a program or portion of a program (*e.g.*, at the State level) following a 90-day notice based on the progress reports or on other information;

(2) You must certify in your notification of compliance status that you purchase post-consumer steel scrap according to paragraph (c)(1) of this section;

(3) If you purchase scrap from a broker, you must certify that all scrap received from that broker was obtained from other scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (c)(1)(i) through (iii) of this section;

(4) You must develop and maintain onsite a plan demonstrating the manner through which your facility is participating in the EPA-approved program. The plan must include facility-specific implementation elements, corporate-wide policies, and/or efforts coordinated by a trade association as appropriate for each facility. The plan must include a list of all suppliers and proof of participation in an approved mercury reduction program. You must provide in the plan documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the permitting authority, you must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols; and

(5) You must conduct periodic inspections or provide other means of corroboration to ensure that scrap providers and brokers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

7. Section 63.7800 is amended by revising paragraph (a) and the introductory text of paragraph (b) and adding paragraph (b)(8) to read as follows:

**§63.7800 What are my operation and maintenance requirements?**

(a) As required by §63.7810(c), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in §63.7790(b). Each plan must address the elements in paragraphs (b)(1) through (8) of this section.

\* \* \* \* \*

(8) The compliance procedures within the operation and maintenance plan shall not include any periods of startup or shutdown in emissions calculations.

8. Section 63.7810 is amended by revising paragraphs (a) and (c) to read as follows:

**§63.7810 What are my general requirements for complying with this subpart?**

(a) You must be in compliance with the emission limitations, standards, and operation and maintenance requirements in this subpart at all times.

\* \* \* \* \*

(c) At all times, you must operate and maintain any affected source, including associated



air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

9. Section 63.7821 is amended by revising paragraph (a) and adding paragraph (e) to read as follows:

**§63.7821 When must I conduct subsequent performance tests?**

(a) You must conduct subsequent performance tests to demonstrate compliance with all applicable emission and opacity limits in Table 1 to this subpart at the frequencies specified in paragraphs (b) through (e) of this section.

\* \* \* \* \*

(e) For each BOPF Group, if complying with the mercury emission limit in Table 1, you must conduct subsequent performance tests annually at the outlet of the control devices for the BOPF Group, with no two consecutive annual performance tests occurring less than 3 months apart or more than 15 months apart.

10. Section 63.7822 is amended by revising paragraphs (a) and (b)(1) to read as follows:

**§63.7822 What test methods and other procedures must I use to demonstrate initial compliance with the emission limits for particulate matter?**

(a) You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b)

through (i) of this section. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(b) \* \* \*

(1) Determine the concentration of particulate matter according to the following test methods:

(i) Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2 or 2F in appendix A-1 to part 60 of this chapter or Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see §63.14) may be used as an alternative to the manual procedures (but not instrumental procedures) in Method 3B.

(iv) Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) Method 5 or 5D in appendix A-3 to part 60 of this chapter or Method 17 in appendix A-6 to part 60 of this chapter, as applicable, to determine the concentration of particulate matter (front half filterable catch only).

\* \* \* \* \*

11. Section 63.7823 is amended by revising paragraphs (a), (c)(1), (d)(1)(i) through (iii), (d)(2)(i), and (e)(1) to read as follows:

**§63.7823 What test methods and other procedures must I use to demonstrate initial compliance with the opacity limits?**

(a) You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b) through (d) of this section. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

\* \* \* \* \*

(c) \* \* \*

(1) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A-4 to part 60 of this chapter.

\* \* \* \* \*

(d) \* \* \*

(1) \* \* \*

(i) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A-4 to part 60 of this chapter except as specified in paragraphs (d)(1)(ii) and (iii) of

this section.

(ii) Instead of procedures in section 2.4 of Method 9 in appendix A-4 to part 60 of this chapter, record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles.

(iii) Instead of procedures in section 2.5 of Method 9 in appendix A-4 to part 60 of this chapter, determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.

(2) \* \* \*

(i) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A-4 to part 60 of this chapter.

\* \* \* \* \*

(e) \* \* \*

(1) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A-4 to part 60 of this chapter.

\* \* \* \* \*

12. Section 63.7824 is amended by revising the introductory text of paragraph (e), paragraphs (e)(1) and (2), and the defined term “M<sub>c</sub>” in Equation 1 in paragraph (e)(3) to read as follows:

**§63.7824 What test methods and other procedures must I use to establish and demonstrate initial compliance with operating limits?**

\* \* \* \* \*

(e) To demonstrate initial compliance with the alternative operating limit for volatile organic compound emissions from the sinter plant windbox exhaust stream in §63.7790(d)(2),

follow the test methods and procedures in paragraphs (e)(1) through (5) of this section. You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(1) Determine the volatile organic compound emissions according to the following test methods:

(i) Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2 or 2F in appendix A-1 to part 60 of this chapter or Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see §63.14) may be used as an alternative to the manual procedures (but not instrumental procedures) in Method 3B.

(iv) Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) Method 25 in appendix A-7 to part 60 of this chapter to determine the mass

concentration of volatile organic compound emissions (total gaseous nonmethane organics as carbon) from the sinter plant windbox exhaust stream stack.

(2) Determine volatile organic compound (VOC) emissions every 24 hours (from at least three samples taken at 8-hour intervals) using Method 25 in 40 CFR part 60, appendix A-7.

Record the sampling date and time, sampling results, and sinter produced (tons/day).

(3) \* \* \*

$M_c$  = Average concentration of total gaseous nonmethane organics as carbon by Method 25 (40 CFR part 60, appendix A-7), milligrams per dry standard cubic meters (mg/dscm) for each day;

\* \* \* \* \*

13. Sections 63.7825 and 63.7826 are redesignated as §§63.7826 and 63.7827, respectively, and a new §63.7825 is added to read as follows:

**§63.7825 What test methods and other procedures must I use to demonstrate initial compliance with the emission limit for mercury?**

(a) If you choose to comply with the mercury emission limit for each BOPF Group in Table 1 to this subpart, you must conduct a performance test to demonstrate initial compliance with the emission limit. You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b) through (f) of this section. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction.

(1) You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the

Administrator such records as may be necessary to determine the conditions of performance tests.

(2) For sources with multiple emission units ducted to a common control device and stack, compliance testing must be performed either by conducting a single compliance test with all affected emissions units in operation or by conducting a separate compliance test on each emissions unit. Alternatively, the owner or operator may request approval from the permit authority for an alternative testing approach. If the units are tested separately, any emissions unit that is not tested initially must be tested as soon as is practicable.

(b) To determine compliance with the emission limit for mercury in Table 1 to this subpart, follow the test methods and procedures in paragraphs (b)(1) and (2) of this section.

(1) Determine the concentration of mercury according to the following test methods:

(i) Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2 or 2F in appendix A-1 to part 60 of this chapter or Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see §63.14) may be used as an alternative to the manual procedures (but not instrumental procedures) in Method 3B.

(iv) Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) Method 29 or 30B in appendix A-8 to part 60 of this chapter to determine the

concentration of mercury from each unit of the BOPF Group exhaust stream stack.

(2) Collect a minimum sample volume of 60 dscf of gas during each mercury test run.

Three valid test runs are needed to comprise a performance test of each BOPF Group unit. If the emission testing results for any of the emission points yields a non-detect value, then the minimum detection limit (MDL) must be used to calculate the mass emissions (lb) for that emission unit and, in turn, for calculating the sum of the emissions (in units of pounds of mercury per ton of steel scrap) for all BOPF Group units subject to the emission standard for determining compliance. If the resulting mercury emissions are greater than the MACT emission standard, the owner or operator may use procedures that produce lower MDL results and repeat the mercury emissions testing one additional time for any emission point for which the measured result was below the MDL. If this additional testing is performed, the results from that testing must be used to determine compliance (*i.e.*, there are no additional opportunities allowed to lower the MDL).

(c) Calculate the mercury mass emissions, based on the average of three test run values, for each BOPF Group unit (or combination of units that are ducted to a common stack and are tested when all affected sources are operating pursuant to paragraph (a) of this section) using Equation 1 of this section as follows:

$$E = \frac{C_s \times V_{mstd}}{K} \quad (\text{Eq. 1})$$

Where:

E = Mass emissions of mercury, pounds (lb);

C<sub>s</sub> = Concentration of mercury in stack gas, gr/dscf;

V<sub>mstd</sub> = Standard meter volume, dscf; and

K = Conversion factor, 7,000 gr/lb.



(d) You must install, calibrate, maintain and operate an appropriate weight measurement device, to measure the tons of steel scrap input to the BOPF cycle simultaneous with each BOPF Group unit's stack test.

(e) You must maintain the systems for measuring weight within  $\pm 5$  percent accuracy. You must describe the specific equipment used to make measurements at your facility and how that equipment is periodically calibrated. You must also explain, document, and maintain written procedures for determining the accuracy of the measurements and make these written procedures available to your permitting authority upon request. You must determine, record, and maintain a record of the accuracy of the measuring systems before the beginning of your initial compliance test and during each subsequent quarter of affected source operation.

(f) Calculate the emissions from each new and existing affected source in pounds of mercury per ton of steel scrap to determine initial compliance with the mercury emission limit in Table 1. Sum the mercury mass emissions (in pounds) from all BOPF Group units calculated using Equation 1 of this section. Divide that sum by the sum of the total amount of steel scrap charged to the BOPFs (in tons).

14. Section 63.7831 is amended by revising paragraph (f)(4) to read as follows:

**§63.7831 What are the installation, operation, and maintenance requirements for my monitors?**

\* \* \* \* \*

(f) \* \* \*

(4) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997 (incorporated by reference, see

§63.14). You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

\* \* \* \* \*

15. Section 63.7833 is amended by revising paragraph (g)(3) and adding paragraphs (h) and (i) to read as follows:

**§63.7833 How do I demonstrate continuous compliance with the emission limitations that apply to me?**

\* \* \* \* \*

(g) \* \* \*

(3) For purposes of paragraphs (g)(1) and (2) of this section, in the case of an exceedance of the hourly average opacity operating limit for an electrostatic precipitator, measurements of the hourly average opacity based on visible emission observations in accordance with Method 9 (40 CFR part 60, appendix A-4) may be taken to evaluate the effectiveness of corrective action.

\* \* \* \* \*

(h) If you choose to comply with §63.7791 by complying with the mercury emissions limits in Table 1 for BOPF Groups, you must conduct annual mercury performance tests in accordance with §63.7821(e) and calculate the emissions from each new and existing affected source in pounds of mercury per ton of steel scrap to determine annual compliance with the mercury emission limits in Table 1. Sum the mercury mass emissions (in pounds) from all BOPF Group units calculated using Equation 1 of §63.7825. Divide that sum by the sum of the total amount of steel scrap charged to the BOPFs (in tons).

(i) If you choose to comply with §63.7791 by using the NVMSRP or another EPA-approved mercury program, or by using scrap not likely to contain mercury, you must obtain and

certify the use of steel scrap per §63.7791(a), (b), or (c), as applicable, to demonstrate continuous compliance with the standard.

16. Section 63.7835 is revised to read as follows:

**§63.7835 What other requirements must I meet to demonstrate continuous compliance?**

Except as provided in §63.7833(g), you must report each instance in which you did not meet each emission limitation in §63.7790 that applies to you. This includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet each operation and maintenance requirement in §63.7800 that applies to you. These instances are deviations from the emission limitations and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements in §63.7841.

(a) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure, record the date, time and duration of each failure.

(b) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(c) Record actions taken to minimize emissions in accordance with §63.7810(c), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

17. Section 63.7840 is amended by revising paragraph (e)(2) and adding paragraphs (f) through (h) to read as follows:

**§63.7840 What notifications must I submit and when?**

\* \* \* \* \*

(e) \* \* \*

(2) For each initial compliance demonstration that includes a performance test, you must

submit the notification of compliance status, including the summary of performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

(f) The notification of compliance status required by §63.9(h) must include each applicable certification of compliance, signed by a responsible official, in paragraphs (f)(1) and (2) of this section, regarding the mercury requirements in §63.7791.

(1) “This facility participates in and purchases scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator and has prepared a plan demonstrating how the facility participates in the EPA-approved program, in accordance with §63.7791(a)(4) or (c)(4)”;

(2) “This facility complies with the requirements for scrap that is not likely to contain motor vehicle scrap, in accordance with §63.7791(b).”

(g) Within 60 calendar days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (g)(1) through (3) of this section. Where applicable, you may assert a claim of EPA system outage, in accordance with §63.7841(e), or force majeure, in accordance with §63.7841(f), for failure to timely comply with this requirement.

(1) *Data collected using test methods supported by EPA’s Electronic Reporting Tool (ERT) as listed on EPA’s ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>) at the time of the test.* Submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through EPA’s Central Data Exchange (CDX) (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of

EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on EPA's ERT website.

(2) *Data collected using test methods that are not supported by EPA's ERT as listed on EPA's ERT website at the time of the test.* The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) *Confidential business information (CBI).* If you claim some of the information submitted under paragraph (g) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of EPA's ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described in paragraph (g) of this section.

(h) Within 60 calendar days after the date of completing each continuous monitoring system (CMS) performance evaluation (as defined in §63.2), you must submit the results of the performance evaluation following the procedures specified in paragraphs (h)(1) through (3) of this section. Where applicable, you may assert a claim of EPA system outage, in accordance with §63.7841(e), or force majeure, in accordance with §63.7841(f), for failure to timely comply with this requirement.

(1) *Performance evaluations of CMS measuring relative accuracy test audit (RATA)*

*pollutants that are supported by EPA's ERT as listed on EPA's ERT website at the time of the evaluation.* Submit the results of the performance evaluation to the EPA via CEDRI, which can be accessed through EPA's CDX. The data must be submitted in a file format generated through the use of EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on EPA's ERT website.

*(2) Performance evaluations of CMS measuring RATA pollutants that are not supported by EPA's ERT as listed on EPA's ERT website at the time of the evaluation.* The results of the performance evaluation must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

*(3) Confidential business information (CBI).* If you claim some of the information submitted under paragraph (h) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of EPA's ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described in paragraph (h) of this section.

18. Section 63.7841 is amended by:

- a. Revising the introductory text of paragraph (b), paragraph (b)(4), the introductory text of paragraph (b)(8), and paragraphs (b)(8)(iv) and (vi);
- b. Adding paragraphs (b)(9) and (10);

c. Revising paragraph (c);

d. Redesignating paragraph (d) as paragraph (g) and revising the newly redesignated paragraph; and

e. Adding new paragraphs (d) through (f).

The revisions and additions read as follows:

**§63.7841 What reports must I submit and when?**

\* \* \* \* \*

(b) *Compliance report contents.* Each compliance report must include the information in paragraphs (b)(1) through (3) of this section and, as applicable, paragraphs (b)(4) through (10) of this section.

\* \* \* \* \*

(4) If you failed to meet an applicable standard, the compliance report must include the number of failures to meet an applicable standard and the date, time and duration of each failure. For each failure, the compliance report must include a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

\* \* \* \* \*

(8) For each deviation from an emission limitation occurring at an affected source where you are using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(8)(i) through (xi) of this section. This includes periods of malfunction.

\* \* \* \* \*

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a malfunction or during another period.

\* \* \* \* \*

(vi) A breakdown of the total duration of the deviations during the reporting period including those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

\* \* \* \* \*

(9) Any deviation from the requirements in §63.7791(a) and the corrective action taken.

(10) If there were no deviations from the requirements in §63.7791(a), a statement that there were no deviations from the requirements during the reporting period.

(c) Beginning on [date 6 months after date of publication of final rule in the **FEDERAL REGISTER**], submit all subsequent reports following the procedure specified in paragraph (d) of this section.

(d) If you are required to submit reports following the procedure specified in this paragraph, you must submit reports to the EPA via CEDRI, which can be accessed through EPA's CDX (<https://cdx.epa.gov/>). You must use the appropriate electronic report template on the CEDRI website (<https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri>) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is CBI, submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website. Submit the file on a compact disc, flash drive, or other



commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described earlier in this paragraph.

(e) If you are required to electronically submit a report through CEDRI in EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (e)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(f) If you are required to electronically submit a report through CEDRI in EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (f)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.*, hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(5) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

(g) *Part 70 monitoring report.* If you have obtained a title V operating permit for an affected source pursuant to 40 CFR part 70 or 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report for an affected source along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all the required information concerning deviations from any emission limitation, standard, or operation and maintenance requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements for an affected source to your permitting authority.

19. Section 63.7842 is amended by:

- a. Revising paragraph (a)(2);
- b. Redesignating paragraph (a)(3) as paragraph (a)(5);
- c. Adding new paragraphs (a)(3) and (a)(4);
- d. Revising paragraph (b)(3); and
- e. Adding paragraph (e).

The revisions and additions read as follows:

**§63.7842 What records must I keep?**

(a) \* \* \*

(2) Records of the date, time and duration of each failure to meet an applicable standard.

(3) For each failure to meet an applicable standard, a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(4) Records of the actions taken to minimize emissions in accordance with §63.7810(c), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

\* \* \* \* \*

(b) \* \* \*

(3) Previous (that is, superseded) versions of the performance evaluation plan required under §63.8(d)(2), with the program of corrective action included in the plan.

\* \* \* \* \*

(e) You must keep records to demonstrate compliance with the requirements for mercury in §63.7791(a) as applicable. You must keep records documenting compliance with §63.7791(b) for scrap not likely to contain motor vehicle scrap. If you are subject to the requirements for an

approved mercury program under §63.7791(a), you must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If you purchase scrap from a broker, you must maintain records identifying each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program.

20. Section 63.7843 is amended by adding paragraph (d) to read as follows:

**§63.7843 In what form and how long must I keep my records?**

\* \* \* \* \*

(d) Any records required to be maintained by this part that are submitted electronically via EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

21. Section 63.7851 is amended by revising the introductory text of paragraph (c) and adding paragraph (c)(5) to read as follows:

**63.7851 Who implements and enforces this subpart?**

\* \* \* \* \*

(c) The authorities that will not be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (5) of this section.

\* \* \* \* \*

(5) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

22. Section 63.7852 is amended by revising paragraph (1) under the definition of "deviation" and adding, in alphabetical order, definitions for "basic oxygen process furnace

group,” “mercury switch,” “motor vehicle,” “motor vehicle scrap,” “opening,” “post-consumer steel scrap,” “pre-consumer steel scrap,” “scrap provider,” and “steel scrap.”

**§63.7852 What definitions apply to this subpart?**

\* \* \* \* \*

*Basic oxygen process furnace group* means the collection of BOPF shop steelmaking operation units including the BOPF primary units (BOPF emissions from oxygen blow iron refining), BOPF secondary units (secondary fugitive emissions in the shop from iron charging, tapping, and auxiliary processes not elsewhere controlled), ladle metallurgy units, and hot metal transfer, desulfurization and slag skimming units.

\* \* \* \* \*

*Deviation* means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation (including operating limits), standard, or operation and maintenance requirement;

\* \* \* \* \*

*Mercury switch* means each mercury-containing capsule or switch assembly that is part of a convenience light switch mechanism installed in a motor vehicle.

*Motor vehicle* means an automotive vehicle not operated on rails and usually operated with rubber tires for use on highways.

*Motor vehicle scrap* means post-consumer scrap from discarded vehicles or automobile bodies, including automobile body hulks that have been processed through a shredder. Motor vehicle scrap does not include automobile manufacturing bundles or miscellaneous vehicle parts,

such as wheels, bumpers or other components that do not contain mercury switches. Motor vehicle scrap typically is not sold separately but is combined with other steel scrap for sale.

*Opening* means any roof monitor, vent, door, window, hole, crack or other conduit that allows gas to escape to the atmosphere from a BF casthouse or BOPF shop.

*Post-consumer steel scrap* means steel scrap that is composed of materials made of steel that were purchased by households or by commercial, industrial, and institutional facilities in their role as end-users of the product and which can no longer be used for its intended purpose.

*Pre-consumer steel scrap* means steel scrap that is left over from industrial or manufacturing processes and which is subsequently recycled as scrap. Other terms used to describe this scrap are new, home, run-around, prompt-industrial, and return scrap.

\* \* \* \* \*

*Scrap provider* means the company or person (including a broker) who contracts directly with a steel mill to provide steel scrap. Scrap processors such as shredder operators or vehicle dismantlers that do not sell scrap directly to a steel mill are not *scrap providers*.

\* \* \* \* \*

*Steel scrap* means pre-consumer and post-consumer discarded steel that is processed by scrap providers for resale (post-consumer) or used on-site (pre-consumer or run-around scrap from within a facility or company). Post-consumer steel scrap may or may not contain motor vehicle scrap, depending on the type of scrap. In regard to motor vehicle scrap, steel scrap only can be classified as “scrap that is *likely* to contain motor vehicle scrap” vs. “scrap that is *not likely* to contain motor vehicle scrap,” as determined by the scrap provider.

\* \* \* \* \*

23. Table 1 to Subpart FFFFF of Part 63 is revised to read as follows:

**Table 1 to Subpart FFFFF of Part 63—Emission and Opacity Limits**

As required in §63.7790(a), you must comply with each applicable emission and opacity limit in the following table:

<b>For . . .</b>	<b>You must comply with each of the following . . .</b>
1. Each windbox exhaust stream at an existing sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.3 lb/ton of product sinter.
3. Each discharge end at an existing sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf <sup>12</sup> ; and
	b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 20 percent (6-minute average).
4. Each discharge end at a new sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow weighted basis, particulate matter in excess of 0.01 gr/dscf; and
	b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 10 percent (6-minute average).
5. Each sinter cooler at an existing sinter plant	You must not cause to be discharged to the atmosphere any emissions that exhibit opacity greater than 10 percent (6-minute average).
6. Each sinter cooler at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf <sup>2</sup> ; and
	b. You must not cause to be discharged to the atmosphere any secondary emissions that exit all openings in the casthouse or structure housing the blast furnace that exhibit opacity greater than 20 percent (6-minute average).



8. Each casthouse at a new blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.003 gr/dscf; and
	b. You must not cause to be discharged to the atmosphere any secondary emissions that exit all openings in the casthouse or structure housing the blast furnace that exhibit opacity greater than 15 percent (6-minute average).
9. Each BOPF at a new or existing shop	a. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with a closed hood system at a new or existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.03 gr/dscf during the primary oxygen blow <sup>23</sup> ; and
	b. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle for an existing BOPF shop <sup>23</sup> or 0.01 gr/dscf during the steel production cycle for a new BOPF shop <sup>3</sup> ; and
	c. You must not cause to be discharged to the atmosphere any gases that exit from a control device used solely for the collection of secondary emissions from the BOPF that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop <sup>2</sup> or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop <sup>2</sup> or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop <sup>2</sup> or 0.004 gr/dscf for a new BOPF shop.
12. Each existing BOPF shop	You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or any other building housing the BOPF or BOPF shop operation that exhibit opacity greater than 20 percent (3-minute average).
13. Each new BOPF shop	a. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 6-minute averages) greater than 10 percent, except that one 6-minute period not to exceed 20 percent may occur once per steel production cycle; or

	b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 3-minute averages) greater than 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle.
14. Each BOPF Group at an existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from the collection of BOPF Group control devices that contain mercury in excess of 0.00026 lb/ton of steel scrap input to the BOPF.
15. Each BOPF Group at a new BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from the collection of BOPF Group control devices that contain mercury in excess of 0.00008 lb/ton of steel scrap input to the BOPF.

<sup>1</sup>This limit applies if the cooler is vented to the same control device as the discharge end.

<sup>2</sup>This concentration limit (gr/dscf) for a control device does not apply to discharges inside a building or structure housing the discharge end at an existing sinter plant, inside a casthouse at an existing blast furnace, or inside an existing BOPF shop if the control device was installed before August 30, 2005.

<sup>3</sup>This limit applies to control devices operated in parallel for a single BOPF during the oxygen blow.

24. Table 2 to Subpart FFFFF of Part 63 is revised to read as follows:

**Table 2 to Subpart FFFFF of Part 63—Initial Compliance With Emission and Opacity Limits**

As required in §63.7826(a)(1), you must demonstrate initial compliance with the emission and opacity limits according to the following table:

<b>For . . .</b>	<b>You have demonstrated initial compliance if . . .</b>
1. Each windbox exhaust stream at an existing sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in §63.7822(c), did not exceed 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in §63.7822(c), did not exceed 0.3 lb/ton of product sinter.

3. Each discharge end at an existing sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in §63.7822(d), did not exceed 0.02 gr/dscf; and
	b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in §63.7823(c), did not exceed 20 percent (6-minute average).
4. Each discharge end at a new sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in §63.7822(d), did not exceed 0.01 gr/dscf; and
	b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in §63.7823(c), did not exceed 10 percent (6-minute average).
5. Each sinter cooler at an existing sinter plant	The opacity of emissions, determined according to the performance test procedures in §63.7823(e), did not exceed 10 percent (6-minute average).
6. Each sinter cooler at a new sinter plant	The average concentration of particulate matter, measured according to the performance test procedures in §63.7822(b), did not exceed 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in §63.7822(e), did not exceed 0.01 gr/dscf; and
	b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in §63.7823(c), did not exceed 20 percent (6-minute average).
8. Each casthouse at a new blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in §63.7822(e), did not exceed 0.003 gr/dscf; and
	b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in §63.7823(c), did not exceed 15 percent (6-minute average).
9. Each BOPF at a new or existing BOPF shop	a. The average concentration of particulate matter from a primary emission control system applied to emissions from a BOPF with a closed hood system, measured according to the performance test procedures in §63.7822(f), did not exceed 0.03 gr/dscf for a new or existing BOPF shop;
	b. The average concentration of particulate matter from a primary

	emission control system applied to emissions from a BOPF with an open hood system, measured according to the performance test procedures in §63.7822(g), did not exceed 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; and
	c. The average concentration of particulate matter from a control device applied solely to secondary emissions from a BOPF, measured according to the performance test procedures in §63.7822(g), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer skimming, and desulfurization at a new or existing BOPF shop	The average concentration of particulate matter from a control device applied to emissions from hot metal transfer, skimming, or desulfurization, measured according to the performance test procedures in §63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop	The average concentration of particulate matter from a control device applied to emissions from a ladle metallurgy operation, measured according to the performance test procedures in §63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop.
12. Each existing BOPF shop	The opacity of secondary emissions from each BOPF shop, determined according to the performance test procedures in §63.7823(d), did not exceed 20 percent (3-minute average).
13. Each new BOPF shop	a. The opacity of the highest set of 6-minute averages from each BOPF shop housing a bottom-blown BOPF, determined according to the performance test procedures in §63.7823(d), did not exceed 20 percent and the second highest set of 6-minute averages did not exceed 10 percent; or
	b. The opacity of the highest set of 3-minute averages from each BOPF shop housing a top-blown BOPF, determined according to the performance test procedures in §63.7823(d), did not exceed 20 percent and the second highest set of 3-minute averages did not exceed 10 percent.
14. Each BOPF Group at an existing BOPF shop	The average emissions of mercury from the collection of BOPF Group control devices applied to the emissions from the BOPF Group, measured according to the performance test procedures in §63.7825, did not exceed 0.00026 lb/ton steel scrap input to the BOPF.
15. Each BOPF Group at a new BOPF shop	The average emissions of mercury from the collection of BOPF Group control devices applied to the emissions from the BOPF Group, measured according to the performance test procedures in §63.7825, did not exceed 0.00008 lb/ton steel scrap input to the BOPF.

25. Table 3 to Subpart FFFFF of Part 63 is revised to read as follows:

**Table 3 to Subpart FFFFF of Part 63—Continuous Compliance With Emission and Opacity Limits**

As required in §63.7833(a), you must demonstrate continuous compliance with the emission and opacity limits according to the following table:

<b>For . . .</b>	<b>You must demonstrate continuous compliance by . . .</b>
1. Each windbox exhaust stream at an existing sinter plant	a. Maintaining emissions of particulate matter at or below 0.4 lb/ton of product sinter; and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
2. Each windbox exhaust stream at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.3 lb/ton of product sinter; and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
3. Each discharge end at an existing sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.02 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 20 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in §63.7821.
4. Each discharge end at a new sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.01 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 10 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in §63.7821.
5. Each sinter cooler at an existing sinter plant	a. Maintaining the opacity of emissions that exit any sinter cooler at or below 10 percent (6-minute average); and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
6. Each sinter cooler at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.1 gr/dscf; and

	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
7. Each casthouse at an existing blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit all openings in the casthouse or structure housing the casthouse at or below 20 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in §63.7821.
8. Each casthouse at a new blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.003 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit all openings in the casthouse or structure housing the casthouse at or below 15 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in §63.7821.
9. Each BOPF at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from the primary control system for a BOPF with a closed hood system at or below 0.03 gr/dscf; and
	b. Maintaining emissions of particulate matter from the primary control system for a BOPF with an open hood system at or below 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; and
	c. Maintaining emissions of particulate matter from a control device applied solely to secondary emissions from a BOPF at or below 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop; and
	d. Conducting subsequent performance tests at the frequencies specified in §63.7821.
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF or 0.003 gr/dscf for a new BOPF; and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
11. Each ladle metallurgy operation at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop; and

	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
12. Each existing BOPF shop	a. Maintaining the opacity of secondary emissions that exit any opening in the BOPF shop or other building housing the BOPF shop or shop operation at or below 20 percent (3-minute average); and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
13. Each new BOPF shop	a. Maintaining the opacity (for any set of 6-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or shop operation at or below 10 percent, except that one 6-minute period greater than 10 percent but no more than 20 percent may occur once per steel production cycle; and
	b. Maintaining the opacity (for any set of 3-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or shop operation at or below 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle; and
	c. Conducting subsequent performance tests at the frequencies specified in §63.7821.
14. Each BOPF Group at an existing BOPF shop	a. Maintaining emissions of mercury from the collection of BOPF Group control devices at or below 0.00026 lb/ton steel scrap input to the BOPF; and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.
15. Each BOPF Group at a new BOPF shop	a. Maintaining emissions of mercury from the collection of BOPF Group control devices at or below 0.00008 lb/ton steel scrap input to the BOPF; and
	b. Conducting subsequent performance tests at the frequencies specified in §63.7821.

26. Table 4 to Subpart FFFFF of Part 63 is revised to read as follows:

**Table 4 to Subpart FFFFF of Part 63—Applicability of General Provisions to Subpart FFFFF**

As required in §63.7850, you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) shown in the following table:

<b>Citation</b>	<b>Subject</b>	<b>Applies to Subpart FFFFF</b>	<b>Explanation</b>
§63.1	Applicability	Yes.	
§63.2	Definitions	Yes.	
§63.3	Units and Abbreviations	Yes.	
§63.4	Prohibited Activities	Yes.	
§63.5	Construction/Reconstruction	Yes.	
§63.6(a), (b), (c), (d), (e)(1)(iii), (f)(2)-(3), (g), (h)(2)(ii)-(h)(9)	Compliance with Standards and Maintenance Requirements	Yes.	
§63.6(e)(1)(i)	General Duty to Minimize Emissions.	No.	See §63.7810(c) for general duty requirement.
§63.6(e)(1)(ii)	Requirement to Correct Malfunctions ASAP	No.	
§63.6(e)(3)	SSM Plan Requirements	No.	
§63.6(f)(1)	SSM Exemption	No.	
§63.6(h)(1)	SSM Exemption	No.	
§63.6(h)(2)(i)	Determining Compliance with Opacity and VE Standards	No.	Subpart FFFFF specifies methods and procedures for determining compliance with opacity emission and operating limits.
§63.6(i)	Extension of Compliance with Emission Standards	Yes.	
§63.6(j)	Exemption from Compliance with Emission Standards	Yes.	
§63.7(a)(1)-(2)	Applicability and Performance Test Dates	No.	Subpart FFFFF and specifies performance test applicability and dates.
§63.7(a)(3), (b)-(d), (e)(2)-(4), (f)-(h)	Performance Testing Requirements	Yes.	
§63.7(e)(1)	Performance Testing	No.	See §§63.7822(a), 63.7823(a), and 63.7825(a).
§63.8(a)(1)-(3), (b), (c)(1)(ii), (c)(2)-(3),	Monitoring Requirements	Yes.	CMS requirements in §§63.8(c)(4)(i)-(ii), (c)(5)-



(c)(4)(i)-(ii), (c)(5)-(6), (c)(7)-(8), (d)(1)-(2), (e), (f)(1)-(5), (g)(1)-(4)			(6), (d)(1)-(2), and (e) apply only to COMS.
§63.8(a)(4)	Additional Monitoring Requirements for Control Devices in §63.11	No.	Subpart FFFFFF does not require flares.
§63.8(c)(1)(i)	General Duty to Minimize Emissions and CMS Operation	No.	
§63.8(c)(1)(iii)	Requirement to Develop SSM Plan for CMS	No.	
§63.8(c)(4)	Continuous Monitoring System Requirements	No.	Subpart FFFFFF specifies requirements for operation of CMS.
§63.8(d)(3)	Written procedures for CMS	No.	See §63.7842(b)(3).
§63.8(f)(6)	RATA Alternative	No.	
§63.8(g)(5)	Data Reduction	No.	Subpart FFFFFF specifies data reduction requirements.
§63.9	Notification Requirements	Yes.	Additional notifications for CMS in §63.9(g) apply only to COMS.
§63.10(a), (b)(1), (b)(2)(x), (b)(2)(xiv), (b)(3), (c)(1)-(6), (c)(9)-(14), (d)(1)-(4), (e)(1)-(2), (e)(4), (f)	Recordkeeping and Reporting Requirements	Yes.	Additional records for CMS in §63.10(c)(1)-(6), (9)-(14), and reports in §63.10(d)(1)-(2) apply only to COMS.
§63.10(b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns	No.	
§63.10(b)(2)(ii)	Recordkeeping of Failures to Meet a Standard	No.	See §63.7842(a)(2)-(4) for recordkeeping of (1) date, time and duration of failure to meet the standard; (2) listing of affected source or equipment, and an estimate of the quantity of each regulated pollutant emitted over the standard; and (3) actions to minimize emissions and correct the failure.

§63.10(b)(2)(iii)	Maintenance Records	Yes.	
§63.10(b)(2)(iv)	Actions Taken to Minimize Emissions During SSM	No.	See §63.7842(a)(4) for records of actions taken to minimize emissions.
§63.10(b)(2)(v)	Actions Taken to Minimize Emissions During SSM	No.	See §63.7842(a)(4) for records of actions taken to minimize emissions.
§63.10(b)(2)(vi)	Recordkeeping for CMS Malfunctions	Yes.	
§63.10(b)(2)(vii)-(ix)	Other CMS Requirements	Yes.	
§63.10(b)(2)(xiii)	CMS Records for RATA Alternative	No.	
§63.10(c)(7)-(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS	No.	Subpart FFFFF specifies record requirements; see §63.7842.
§63.10(c)(15)	Use of SSM Plan	No.	
§63.10(d)(5)(i)	Periodic SSM Reports	No.	See §63.7841(b)(4) for malfunction reporting requirements.
§63.10(d)(5)(ii)	Immediate SSM Reports	No.	
§63.10(e)(3)	Excess Emission Reports	No.	Subpart FFFFF specifies reporting requirements; see §63.7841.
§63.11	Control Device Requirements	No.	Subpart FFFFF does not require flares.
§63.12	State Authority and Delegations	Yes.	
§63.13-§63.16	Addresses, Incorporations by Reference, Availability of Information and Confidentiality, Performance Track Provisions	Yes.	